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Northeastern Forest Experiment Station

Resource Bulletin NE-126

Forest Statistics for Pennsylvania--1978 and 1989

Carol L. Alerich

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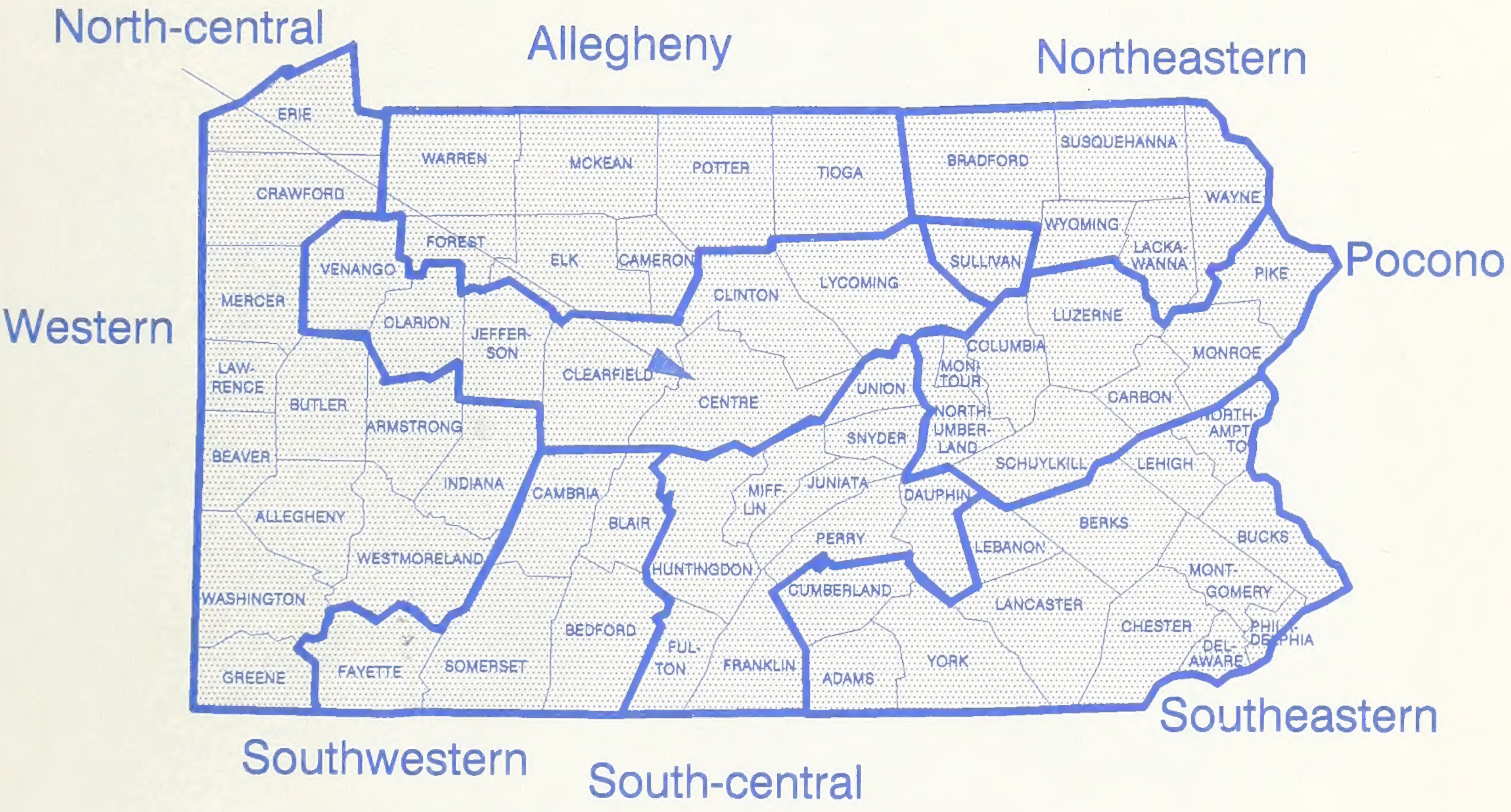

Abstract

A statistical report on the fourth forest inventory of Pennsylvania conducted in 1988-90 by the Forest Inventory and Analysis Unit, Northeastern Forest Experiment Station. Statistics for forest area, numbers of trees, wildlife habitat, tree biomass, timber volume, timber products output, growth, and change are displayed at the state and, when appropriate, at the unit and county levels. The current inventory indicates that the state has approximately 24.8 billion cubic feet of growing-stock volume on 15.9 million acres of timberland.

Foreword

The fourth inventory of Pennsylvania was under the overall direction of John R. Peters, Project Leader of the Forest Inventory and Analysis Unit. Charles T. Scott was responsible for the design of the inventory and sample selection. David J. Alerich supervised the interpretation of aerial photos and collection of data. He was assisted by Robert E. Ilgenfritz, Richard A. McCullough, and Joseph G. Reddan. Members of the data collection staff were:

Leif E. Anderson
Baron L. Baggett
Scott E. Bates
Lisa M. Bearer
James P. Becker
Stephen J. Begin
Victor P. Bender
Steven T. Bergfeld
Mary K. Bergkamp-Hattis
Robert M. Bozic
Larry G. Bradfield
Janet M. Breckenridge
Jill L. Bright
Adam C. Campbell
Paul W. Casson
Lydia N. Chamberlain
Timothy R. Cole
David S. Conner
Patricia M. Cormier
Christine Costello
Gary M. Dahler, Jr.
Julie A. Decker
Frances D. Devoe
Joseph P. DiModica, II
Edward A. Doane
David A. Drake
Mark M. Falcon
Nancy L. Fitzgerald
Tony Ford
Thomas V. Gabriel
Peter T. Gaulke
Dwayne S. Gibbons
Gary J. Glick
Michael D. Glina
Ricarda V. Goins
Douglas M. Griffith
Jerry C. Hall
Julie A. Hampe
Stacey L. Hartwick
David J. Hattis
Terry L. Heimgartner
Kevin L. Hinkle
Karl E. Hirsch
Jeffrey J. Irwin
David R. Jackson
Charles E. Jedlicka
Bruce G. Kellman
Gary L. Kolesar
Paul J. Krusic
Kim D. Lachler
Jennifer L. Lewis
Joseph R. Mahoney
Russell S. McAllister
Andrew L. McFarland
John W. McHugh
Thomas B. Mears
Kraig L. Moore
Laura J.S. Murphy
Paul M. Nolan
Kevin E. Oliver
Gene C. Pachtler
Thomas P. Prusaczyk
Thomas M. Ramsey
Pamela L. Richey
Sandra L. Richter
Darlene M. Rusk
Paul D. Sanders
Kim M. Santos
Steven J. Schacht
Craig W. Schmid
Jefferey L. Shields
Catherine M. Smith
Gary P. Sredzienski
R. Todd Stanford
Lori B. Tepke
Scott H. Tepke
Tina J. Terrell
Tara A. Thornbury
Kathryn M. Tillman
Val K. Urban
Judith A. Weese
Teresa L. Witzel
Laura M. Wright
Michael S. Wrobel

Marie Pennestri was responsible for administrative and secretarial services. Vickie M. Sharon typed the text for this report. Eric H. Wharton, with the assistance of John L. Bearer, Pennsylvania Bureau of Forestry, collected and compiled the data on timber products output and timber removals.

The Forest Inventory and Analysis Unit would like to thank the landowners of Pennsylvania; the Pennsylvania Bureau of Forestry, Department of Environmental Resources; and the Allegheny National Forest, USDA Forest Service; for their cooperation and assistance during this inventory.

Forest Statistics for Pennsylvania-- 1978 and 1989

The Author

Carol L. Alerich, Forester
Forest Inventory and Analysis Unit
Northeastern Forest Experiment Station
USDA Forest Service
Radnor, PA

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Northeastern Forest Experiment Station
USDA Forest Service
5 Radnor Corporate Center, Suite 200
100 Matsonford Road, Radnor, PA 19087-4585

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Highlights

Forest Land Area

* Fifty-nine percent (17.0 million acres) of Pennsylvania's total land area (28.7 million acres) is forest land, an increase of less than 1 percent since 1978.

* Of the 17.0 million acres of forest land, 93 percent (15.9 million acres) is classified as timberland (formerly known as commercial forest land). Timberland acreage is virtually unchanged since the 1978 inventory.

* Seventy-nine percent (12.5 million acres) of the timberland area in Pennsylvania is privately owned.

* The oak/hickory forest-type group is the most common in the state, making up 47 percent of the timberland area. Northern hardwood forests cover 38 percent of the timberland area.

* Sawtimber stands make up 54 percent of the timberland area, poletimber stands 31 percent, and sapling/seedling and nonstocked stands 15 percent.

Tree Biomass

* The net dry weight of all live trees on timberland in Pennsylvania is 913.0 million tons, or 57.5 tons per acre. Hardwoods account for 852.9 million tons, or 53.7 tons per acre; softwoods contribute 3.8 tons per acre, for a total of 60.1 million tons.

* Sixty-four percent, or 583.6 million tons, of the net dry weight of all live trees is in growing-stock material. Of the remaining 329.4 million tons of all-live-tree weight, 63 percent is in growing-stock tops, 23 percent is in saplings, and 15 percent is in cull trees.

* Salvable dead trees contribute an additional 12.7 million tons of dry weight biomass.

Timber Volume

- Growing-stock volume in Pennsylvania is 24.8 billion cubic feet, an average of 1,561 cubic feet per acre. This is an increase of 19 percent since 1978 when the growing-stock volume was 20.8 billion cubic feet.

- Sawtimber volume increased by 39 percent, from 48.1 billion board feet to 66.7 billion board feet, and currently is yielding an average of 4,203 board feet per acre.

- Red maple is the leading species in growing-stock volume with 18 percent of the total volume. Northern red oak and black cherry have the next highest amount of volume with 10 percent each, and sugar maple accounts for 9 percent of the total growing-stock volume.

- The same species are the top four for sawtimber volume as well. Red maple makes up 15 percent of the total sawtimber volume; northern red oak, 13 percent; black cherry, 11 percent; and sugar maple, 8 percent.

- Across the state, 34 percent of the volume of larger sawtimber (15 inches in diameter or larger) hardwood trees is in log grades 1 and 2. Northern red oak has 47 percent of its volume of larger sawtimber trees in the two best grades.

Change

- The average annual net growth of growing-stock volume, 618.5 million cubic feet, yields 39.0 cubic feet per acre per year, and is 2.5 percent of the 1989 inventory.

- The growing-stock volume net growth to removals ratio is 2.1 to 1.

- All oaks showed an overall average annual loss of 15.8 million cubic feet per year. Chestnut oak growing-stock volume showed an average annual net loss of 11.1 million cubic feet; other oaks (primarily black and scarlet oaks) had an average annual net loss of 10.4 million cubic feet; and select white oaks decreased by 7.2 million cubic feet per year.

- Northern red oak was the only oak species or species group that showed a positive change in growing-stock volume, with an increase of 12.8 million cubic feet annually.

- Average annual net growth of sawtimber, 2,441.2 million board feet, is 3.7 percent of the 1989 inventory.

- Average annual removals of sawtimber is 1.4 percent of the 1989 inventory.

- The sawtimber volume net growth to removals ratio is 2.6 to 1.

- All species showed a positive change in sawtimber volume.

Introduction

Under the authority of the McSweeny-McNary Forest Research Act of 1928 and subsequent acts, including the Renewable Resources Planning Act of 1974 and the Renewable Resources Research Act of 1978, the USDA Forest Service conducts periodic forest inventories of all states to provide up-to-date information on the forest resources of the Nation. The initial inventory of Pennsylvania's resources was conducted in 1958. The second inventory was completed in 1968. The third inventory was made in 1977-78. This report presents the forest resource data from the fourth inventory, which was carried out in 1988-90. This inventory was a cooperative effort of the Pennsylvania Bureau of Forestry, Department of Environmental Resources; the Allegheny National Forest; and the Northeastern Forest Experiment Station.

The Forest Inventory and Analysis Unit of the Northeastern Forest Experiment Station conducted the inventory on all forest land, developed the resource tables, and prepared this report.

The sampling procedure used during the current inventory included the use of aerial photography, the remeasurement of a sample of ground plots established in earlier inventories, and the establishment of new ground plots. For Pennsylvania, this required the classification of 85,158 new points and the reclassification of 3,240 ground plot locations from the previous inventory on aerial photography into land-use and cubic-foot volume classes. Then, 2,880 ground plots from the previous inventory were remeasured and 2,418 new ground plots were established. The data collected were summarized using the FINSYS computer system developed at the Northeastern Forest Experiment Station.

The resurvey of Pennsylvania's forest resources involved several associated studies and considerable analysis. Reports discussing the state's private forest-land owners and its primary forest products industry will also be available. An analytical report discussing the state's forest resource in further detail is being prepared.

The forest area, numbers of trees, wildlife habitat, biomass, timber volume, growth, change, and timber products output statistics shown in this report are a summary of the information collected. (See **List of Available Tables** at back of report.) Other information or additional summaries may be developed. For information about these, contact the **Forest Inventory and Analysis Unit, USDA Forest Service, 5 Radnor Corporate Center, Suite 200, 100 Matsonford Road, Radnor, PA 19087-4585**.

The four eastern Forest Experiment Stations have agreed to include a set of 25 core tables in each of their state resource bulletins. The format of any one of these tables will be identical for all 37 states in the Stations' territories. Rather than being grouped as a set, these core tables have been interspersed throughout this publication according to their level of data or content. The index in this report contains a list of tables presented in this publication, and the corresponding core table number.

Reliability of the Estimates

The data in this report were based on a carefully designed sample of forest conditions throughout Pennsylvania. However, because the field crews did not measure every tree or every acre in the state, the data are estimates. The reliability of the estimating procedure can be judged by two important statistical measures: accuracy and precision. Among statisticians, accuracy refers to the success of estimating the true value; precision refers to the clustering of sample values about their own averages or to the variation among repeated samples. We are interested primarily in the accuracy of the inventory, but in most cases we can only measure its precision.

Although accuracy cannot be measured exactly, it can be checked. Preliminary tables are sent to other agencies and to outside experts familiar with the state of Pennsylvania. If questions arise, the data are reviewed and reanalyzed to resolve the differences. Also, great care is taken to keep all sources of procedural error to a minimum by careful training of both field and office personnel, frequent inspection of field and office work, and application of the most reliable inventory methods.

Because of the care exercised in the inventory process, estimates of precision afford a reasonable measure of the inventory's adequacy. The precision of each estimate is described by its sampling error. Sampling errors are given with several tables in this report. The others are available upon request.

Briefly, here is an example of how the sampling error is used to indicate reliability. The estimate of timberland for Pennsylvania is 15,872,800 acres. The associated sampling error is 0.6 percent, or 95,200 acres. This means that if there are no errors in the procedure and we repeated the inventory in the same way, the odds are 2 to 1 (66 percent probability) that the estimate would be between 15,777,600 and 15,968,000 acres (15,872,800 ±95,200). Similarly, the odds are 19 to 1 (95 percent probability) that the estimate would be within ±190,400 acres. County estimates are less reliable. In Pennsylvania, for example, while the sampling error for timberland at the state level is 0.6 percent, the sampling error for Carbon County is 6.8 percent. In general, as the size of the estimate decreases in relation to the total, the sampling error, expressed as a percentage of the estimate, increases.

For many of the tables in this report, both the last column and last row are labeled "SE." These figures are the sampling errors of the column and row totals. The last sampling error given (SE) is for the table total (T). To calculate the approximate sampling error (se) for a table cell (X), use the following formula **(This formula is reliable only for estimating sampling errors of individual cells in AREA tables)**:

$$se = SE(T/X)^{1/2}$$

where:

T = estimated table total (sum over all cells in table)
SE = sampling error of T
X = estimate for a table cell
se = approximate sampling error of X, in percent

Any estimate with a sampling error of 50 percent or more is not significantly different from zero, and those estimates with errors between 25 and 50 percent are suspect. Therefore, any estimates that have errors exceeding 25 percent should be used with caution.

Comparison Between Inventories

To evaluate the condition of the forest resource, it is useful to compare the current estimates with those from the previous inventory. However, as a result of our ongoing efforts to improve the efficiency of the inventory, we have made several changes in procedures and definitions since 1978. Because these procedural changes make the direct comparison of some of the current estimates with those published by Considine and Powell (1978) inappropriate, users should use caution when comparing the data in this report to the 1978 report. In this report, several tables are provided at the state and unit level to allow for comparisons. Changes in methods and definitions are as follows:

> To improve sampling efficiency, a major change was made in the design of the plots established in 1988-90. The new design combines a fixed radius plot with variable radius points and was used when a new plot was established. In addition to the traditional data gathered to estimate forest area and tree volumes, information was collected to describe forest wildlife habitat and forest tree biomass.
>
> New height and volume equations were developed for both growing stock and sawtimber (Scott 1979, 1981). These equations are derived by nonlinear regression techniques; in 1978 linear regression was used. The nonlinear method is used because it yields estimates with smaller errors between predicted and actual values.
>
> In 1978, the estimate of other forest (formerly known as unproductive) land included 223,625 acres of Bureau of Forestry lands in stands 10 acres or larger which were occupied by tree species but for which the site and topography are inhibiting factors that prohibit timber harvesting under current economic conditions. The Bureau anticipated no management practices on these lands due to shortness of merchantable stem, excessive rocks, or steepness of the terrain. In 1989, the Bureau has 293,370 acres that fall into this category. This land currently is considered reserved by the Bureau of Forestry. The acreage of other forest (unproductive) land owned by other State agencies is estimated from Forest Inventory plots.
>
> Stand size is a classification (seedling/sapling, poletimber, sawtimber, or nonstocked) of forest land based on the size of the trees that dominate an area. In the 1978 inventory, only growing-stock trees were

considered in determining stand size; the 1989 procedure considers all live trees. This report includes a current (1989) area table showing the estimate of area of timberland by stand-size class using only growing-stock trees, so comparison to the 1978 report can be made.

The county is the basic building block for estimating forest land area and timber volume at the state level. One of the prerequisites for developing county-level statistics is that a county must have at least 60,000 acres of timberland. Counties that do not meet this criterion have too few plots to allow reliable estimates. Such counties are grouped with a neighboring county or counties to form a sampling base large enough to provide reliable estimates. Lancaster and Lebanon Counties in the Southeastern Unit are examples of such a sampling base.

Although estimates were made at the 1978 inventory using this procedure of estimating at the county (or group of counties) level, some counties were grouped together in 1978 (because of sampling anomalies) that were not grouped in 1989. In 1989, counties stood alone if they met the prerequisites to do so.

Eighty-nine percent of the plots that were visited during the 1978 inventory in Pennsylvania were remeasured in 1988-90. Because of this large remeasurement, the estimates of net growth and net change are strong. This affords an opportunity to look at real change in volume from occasion to occasion rather than the difference between estimates taken at two different occasions based on different procedures. The estimates of volume on timberland at the 1978 occasion that are shown in this report are derived by subtracting the total volume change estimated from the remeasurement plots from the current estimates of volume.

The method of calculating change was modified somewhat. The calculation of current volume of a tree is based on the current diameter, tree class, and height. The previous volume is calculated using the previous diameter, tree class, and a previous height that is regressed from the current height. This eliminates bias that occurs when a tree's height is measured at different occasions with potentially different inventory procedures. The difference between the volumes is net change. Different types of trees (e.g. mortality, accretion, removals) contribute to the different components of total net change between inventories.

Definitions of Terms

Acceptable tree. (a) Live sawtimber trees that do not qualify as preferred trees but are not cull trees. (b) Live poletimber trees that prospectively will not qualify as preferred trees, but are not now or prospectively cull trees.

Accretion. The estimated net growth on growing-stock trees that are measured during the previous inventory (divided by the number of growing seasons between surveys to produce average annual accretion). It does not include the growth on trees that were cut during the period, nor those trees that died.

Agricultural/herbaceous land. Land with herbaceous plant cover, both grasses and/or forbs, including cropland, pasture land, and natural grass lands.

Aquatic edge. An edge condition created when a terrestrial land use abuts a lake, pond, river, stream, or major wetland.

Basal-area class. A classification of forest land in terms of basal area (cross-sectional area of a tree stem at breast height in square feet per acre) of all live trees of all sizes.

Board foot. A unit of lumber measurement 1 foot long, 1 foot wide, and 1 inch thick, or its equivalent.

Board-foot stand-volume class. A classification of forest land in terms of net board-foot volume of sawtimber trees per acre.

Bog/Marsh/Swamp. Land that has less than 10.0 percent stocking with live trees and which characteristically supports low, generally herbaceous or shrubby vegetation, and which is intermittently covered with water during all seasons; includes tidal areas that are covered with salty or brackish water during high tides.

Browse. Forage resource; defined here as current twig growth of woody-stemmed plants that are 1 to 8 feet tall.

Browse-utilization class. There are four levels of browse use: none, light(1 to 10 percent available), moderate(11 to 40), and heavy (more than 40 percent).

Cabin log. A relatively slender roundwood product that is cut to standard sizes, meets specifications of strength, straightness, and soundness, and is finished for use in constructing cabins, barns, and other buildings.

Cavity. A hollowed out space in a tree, either natural or faunal caused; frequently used as a nesting site or temporary refuge by many species of wildlife.

Coarse residues. Manufacturing residues suitable for chipping, such as slabs, edgings, and veneer cores.

Commercial species. Tree species currently or prospectively suitable for industrial wood products; excludes species of typically small size, poor form, or inferior quality, such as hawthorn and sumac.

Condition class. Classification of trees based on live or dead and condition of top of the tree (i.e., intact, broken, dead).

Cord. See Standard cord.

County and municipal lands. Lands owned by counties and local public agencies or municipalities or leased to them for 50 years or more.

Cropland. Land that currently supports agricultural crops including silage and feed grains, bare farm fields resulting from cultivation or harvest, and maintained orchards.

Cubic-foot stand-volume class. A classification of forest land in terms of net cubic-foot volume of all live trees per acre.

Cull decrement. The net volume of rough or rotten trees in the previous inventory that became growing-stock trees in the current inventory (divided by the number of growing seasons between surveys to produce average annual cull decrement).

Cull tree. A rough tree or a rotten tree.

Cull increment. The net volume of growing-stock trees in the previous inventory that became rough or rotten trees in the current inventory (divided by the number of growing seasons between surveys to produce average annual cull increment).

Cultural land. Land with human development as the major land cover; includes industrial, commercial, and residential land uses.

Diameter at breast height (d.b.h.). The diameter outside bark of a standing tree measured at 4-1/2 feet above the ground.

Dry ton. A unit of measure of dry weight equivalent to 2,000 pounds or 907.1848 kilograms.

Dry ton stand-volume class. A classification of forest land in terms of net dry weight of the aboveground components of all live trees per unit area; usually expressed in dry tons per acre.

Dry weight. The weight of wood and bark as it would be if it had been oven-dried; usually expressed in pounds or tons.

Farmer-owned lands. Lands owned by farm operators, whether part of the farmstead or not; excludes land leased by farm operators from nonfarm owners.

Federal lands. Lands (other than National Forests) administered by Federal agencies.

Fine residues. Manufacturing residues not suitable for chipping, such as sawdust and shavings.

Forest industry lands. Lands owned by companies or individuals that operate primary wood-using plants.

Forest land. Land that is at least 10 percent stocked with trees of any size, or that formerly had such tree cover and is not currently developed for a nonforest use. The minimum area for classification of forest land is one acre. The components that make up forest land are timberland and all noncommercial forest land (see definitions).

Forest type. A classification of forest land based on the species that form a plurality of live-tree basal-area stocking.

Forest-type group. A combination of forest types that share closely associated species or site requirements. The many forest types in this state were combined into the following major forest-type groups (the descriptions apply to forests in this state):

a. *White/red pine*--forests in which white pine, hemlock, or red pine make up the plurality of the stocking, singly or in combination; common associates include red spruce, maple, and yellow-poplar.

b. *Spruce/fir*--forests in which red spruce, northern white-cedar, balsam fir, white spruce, black spruce, or tamarack, singly or in combination, make up a plurality of the stocking; common associates include yellow birch and red maple.

c. *Loblolly/shortleaf pine*--forest in which loblolly, shortleaf or other southern yellow pines (except longleaf or slash pine), singly or in combination, make up a plurality of the stocking; common associates include hickory and maple.

d. *Oak/pine*--forest in which northern red oak or white ash, singly or in combination, make up a plurality of the stocking and in which pines or eastern redcedar contribute 25 to 50 percent of the stocking; hemlock, maple, sweet birch, and yellow-poplar are associates.

e. *Oak/hickory*--forests in which upland oaks, red maple (when associated with central hardwoods), or hawthorn, singly or in combination, make up a plurality of the stocking and in which white pine makes up less than 25 percent of the stocking; common associates include hard pines, hemlock, maple, birch, hickory, and yellow-poplar.

f. *Oak/gum/cypress*--forests in which tupelo, blackgum, sweetgum, oak, or southern cypress, singly or in combination, make up a plurality of the stocking; common associates include hickory, maple, yellow-poplar, and beech.

g. *Elm/ash/red maple*--forests in which black ash, elm, red maple (when growing on wet sites), willow, or green ash, singly or in combination, make up a plurality of the stocking; common associates include sugar maple, hickory, yellow-poplar, and black cherry.

h. *Northern hardwoods*--forests in which sugar maple, beech, yellow birch, red maple (when associated with northern hardwoods), pin cherry, or black cherry, singly or in combination, make up a plurality of the stocking; common associates include hard pines, hemlock, hickory, ash, and yellow-poplar.

i. *Aspen/birch*--forests in which aspen, paper birch, or gray birch, singly or in combination, make up a plurality of the stocking.

Fuelwood. Round, split, or chipped woody material (with or without bark) that is converted to household, commercial, or industrial energy.

Geographic unit. A county or a group of counties within a state that is large enough to provide an adequate sample that will yield statistically reliable estimates of timberland area, volume, and components of change.

Green ton. A unit of measure of green weight equivalent to 2,000 pounds or 907.1848 kilograms.

Green ton stand-volume class. A classification of forest land in terms of net green weight of the aboveground components of all live trees per unit area; usually expressed in green tons per acre.

Green weight. The weight of wood and bark as it would be if it had been recently cut; usually expressed in pounds or tons.

Gross growth. The sum of accretion and ingrowth.

Growing-stock trees. Live trees of commercial species classified as sawtimber, poletimber, saplings, or seedlings; that is, all live trees of commercial species except rough and rotten trees.

Growing-stock volume. Net volume, in cubic feet, of growing-stock trees 5.0 inches d.b.h. and larger from a 1-foot stump to a minimum 4.0-inch top diameter outside bark of the central stem, or to the point where the central stem breaks into limbs. Net volume equals gross volume less deduction for cull.

Hard hardwoods. Hardwood species with an average specific gravity of 0.50 or less.

Hardwoods. Dicotyledonous trees, usually broad-leaved and deciduous.

Harvested cropland. All land from which crops were harvested or hay was cut, all land in orchards, citrus groves, vineyards, and nursery and greenhouse products.

Idle farmland. Former cropland or pasture that has not been tended within the last 2 years and has less than 10.0 percent stocking with live trees (established seedlings or larger trees), regardless of species.

Importance value. Average of relative density and relative frequency of a species.

Improved/maintained pasture. Land that is currently used and maintained for grazing (not including grazed cropland).

Indian lands. (a) Lands held in trust by the United States or States for Indian tribes or individual Indians. (b) Lands owned in fee by Indian tribes whether subject to Federal or State restrictions against alienation or not.

Industrial and commercial land. Supply yards, parking lots, factories, etc.

Industrial products. All roundwood products except fuelwood.

Ingrowth. The estimated net volume of growing-stock trees that became 5.0 inches d.b.h. or larger during the period between inventories (divided by the number of growing seasons between surveys to produce average annual ingrowth).

International 1/4-inch rule. A log rule or formula for estimating the board-foot volume of logs. The mathematical formula is:

$$(0.22D^2 - 0.71D)(0.904762)$$

for 4-foot sections, where D=diameter inside bark at the small end of the log section. This rule is used as the USDA Forest Service standard log rule in the Eastern United States.

Land area. (a) Bureau of Census: The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area. (b) Forest Inventory and Analysis: same as (a) except that the minimum width of streams, etc. is 120 feet, and the minimum size of lakes, etc. is 1 acre.

Land-use edge. A condition created by the juxtaposition of two different land uses.

Logging residues. The unused portions of growing-stock trees harvested or killed in the process of logging.

Manufacturing plant residues. Wood materials, such as sawmill slabs and edgings, sawdust, veneer clippings and cores, post and pole trimming, and pulp screening, that are generated from the manufacture of roundwood products. If these residues are used, they are referred to as plant by-products.

Mast. Seed produced by woody-stemmed perennial plants; generally refers to soft (fruit) and hard (nuts) mast.

Merchantable stem. The main stem of the tree between a 1-foot stump height and a 4-inch top diameter (outside the bark), including the wood and bark.

Mining and waste land. Surface mining, gravel pits, dumps.

Miscellaneous private lands. Privately owned lands other than forest industry and farmer-owned lands.

Mortality. The estimated net volume of growing-stock trees at the previous inventory that died from natural causes before the current inventory (divided by the number of growing seasons between surveys to produce average annual mortality) .

National Forest lands. Federal lands legally designated as National Forests or purchase units and other lands administered as part of the National Forest System by the USDA Forest Service.

Net change. The difference between the current and previous inventory estimates of growing-stock volume (divided by the number of growing seasons between surveys to produce average annual net change). Components of net change are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement, minus removals.

Net dry weight. The dry weight of woody material less the weight of all unsound (rotten) material.

Net green weight. The green weight of woody material less the weight of all unsound (rotten) material.

Net growth. The change, resulting from natural causes, in growing-stock volume during the period between surveys (divided by the number of growing seasons to produce average annual net growth). Components of net growth are ingrowth plus accretion, minus mortality, minus cull increment, plus cull decrement.

Noncensus water. Streams/rivers between 120 feet and 1/8 mile in width, and bodies of water between 1 and 40 acres in size. The Bureau of the Census classifies such water as land.

Noncommercial forest land. Reserved timberland, Christmas tree plantations, other forest land, and other reserved forest land (see definitions).

Noncommercial species. Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land. Land that has never supported forests, or land formerly forested but now in nonforest use such as cropland, pasture, residential areas, or highways.

Nonsalvable dead tree. A dead tree with most or all of its bark missing that is at least 5.0 inches d.b.h. and is at least 10 feet tall.

Nonstocked area. A stand-size class of forest land that is stocked with less than 10 percent of minimum full stocking with live trees.

Other cropland. Includes cropland used for cover crops and soil improvement (legumes).

Other farmland. All nonforest land on a farm excluding cropland, pasture, and idle farmland; includes farm lanes, stock pens, and farmsteads.

Other forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions (formerly known as unproductive forest land).

Other reserved forest land. Forest land that is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions, because of adverse site conditions, and is protected through statute or administrative designation.

Ownership class. A classification of forest land based on ownership and nature of business or control of decisionmaking for the land. It encompasses all types of legal entities having ownership interest in the land, whether public or private.

Pasture land. Includes any pasture land other than cropland and woodland pasture. Can include lands that had lime fertilizer or seed applied, or that had been improved by irrigation, drainage, or control of weeds and brush.

Pastured cropland. Includes rotation pasture and grazing land that would have been used for crops without additional improvement.

Pastured timberland. Land that is partially developed, maintained, or managed for pasture and grazing, but which continues to meet the definition of timberland.

Piling (piles). Relatively slender structural roundwood products that are cut to the maximum length possible (within top circumference and other specifications of strength, straightness, and soundness) that when nearly buried in the ground provide vertical or lateral support for buildings, foundations, bridges, docks, and other structures.

Plant by-products. Wood products, such as pulp chips, recycled from manufacturing plant residues.

Poletimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of poletimber exceeds that of sawtimber.

Poletimber tree. A live tree of commercial species meeting regional specifications of soundness and form and at least 5.0 inches in d.b.h., but smaller than a sawtimber tree.

Preferred tree. A high-quality tree, from a lumber viewpoint, that would be favored in cultural operations. General characteristics include grade 1 butt log (if sawtimber size), good form, good vigor, and freedom from serious damage.

Primary manufacturing plant. A plant that converts round timber into wood products such as woodpulp, lumber, veneer, cooperage, and dimension products.

Pulpwood. Roundwood, whole-tree chips, or manufacturing plant residues that are used for the production of wood pulp.

Reclaimed timberland. Forest land sufficiently productive to qualify as timberland that shows signs of being land that was mined and reclaimed.

Recreation site. Parks, campgrounds, playing fields, tracks, etc.

Relative density. Number of individuals of a given species as a percentage of the total of all species.

Relative frequency. Frequency of a given species as a percentage of the total of all frequencies (frequency equals the total number of plots where a given species occurs divided by the total number of plots).

Removals. The net growing-stock volume harvested or killed in logging, cultural operations (such as timber stand improvement) or land clearing, and the net growing-stock volume neither harvested nor killed but growing on land that was reclassified from timberland to noncommercial forest land or nonforest land during the period between surveys. This volume is divided by the number of growing seasons to produce average annual removals.

Reserved timberland. Forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative designation; land exclusively used for Christmas tree production (formerly known as productive reserved forest land).

Rights-of-way. Highways, pipelines, powerlines, canals.

Rotten tree. A live tree of commercial species that does not contain at least one 12-foot sawlog or two noncontiguous sawlogs, each 8 feet or longer, now or prospectively, and does not meet regional specifications for freedom from defect primarily because of rot; that is, more than 50 percent of the cull volume in the tree is rotten.

Rough tree. (a) The same as a rotten tree except that a rough tree does not meet regional specifications for freedom from defect primarily because of roughness or poor form; also (b) a live tree of noncommercial species.

Roundwood products. Logs, bolts, total tree chips, or other round timber generated by harvested trees for industrial or consumer uses.

Salvable dead tree. A tree at least 5.0 inches d.b.h. that has died recently and still has intact bark; may be standing, fallen, windthrown, knocked down, or broken off.

Sampling error. A measure of the reliability of an estimate, expressed as a percentage of the estimate. The sampling errors given in this report correspond to one standard deviation and are calculated as the square root of the variance, divided by the estimate, and multiplied by 100.

Saplings. Live trees 1.0 through 4.9 inches d.b.h.

Sapling-seedling stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with live trees with half or more of such stocking in saplings or seedlings or both.

Sawlog. A log meeting regional standards of diameter, length, and freedom from defect, including a minimum 8-foot length and a minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods. (See specifications under Log-Grade Classification.)

Sawlog portion. That part of the bole of a sawtimber tree between the stump and the sawlog top; that is, the merchantable height.

Sawlog top. The point on the bole of a sawtimber tree above which a sawlog cannot be produced. The minimum sawlog top is 7.0 inches diameter outside bark (d.o.b.) for softwoods and 9.0 inches d.o.b. for hardwoods.

Sawtimber stand. A stand-size class of forest land that is stocked with at least 10 percent of minimum full stocking with all live trees with half or more of such stocking in poletimber or sawtimber trees or both, and in which the stocking of sawtimber is at least equal to that of poletimber.

Sawtimber tree. A live tree of commercial species at least 9.0 inches d.b.h. for softwoods or 11.0 inches for hardwoods, containing at least one 12-foot sawlog or two noncontiguous 8-foot sawlogs, and meeting regional specifications for freedom from defect.

Sawtimber volume. Net volume in board feet, by the International 1/4-inch rule, of sawlogs in sawtimber trees. Net volume equals gross volume less deductions for rot, sweep, and other defects that affect use for lumber.

Seedling. A live tree less than 1.0 inch d.b.h. and at least 1 foot tall.

Shrub. Woody-stemmed perennial plant, generally with no well-defined main stem and less than 12 feet in height at maturity; defined by species.

Shrub land. Land with shrub and/or tree cover and an obvious herbaceous understory; average canopy height is less than 25 feet and crown closure is less than 70 percent.

Single-family/custom house. House sheltering one family and immediately adjacent managed land.

Snag. Standing dead tree with most or all of its bark missing that is at least 5.0 inches d.b.h. and at least 10 feet tall (does not include salvable dead).

Soft hardwoods. Hardwood species with an average specific gravity greater than 0.50.

Softwoods. Coniferous trees, usually evergreen and having needles or scalelike leaves.

Species frequency. Number of plots on which a given sp es is found expressed as a percentage of the total number of plots.

Stand. A group of forest trees growing on forest land.

Stand-area class. The area, contiguous to the plot, that is of the same overall stand size and major type group (hardwood, softwood, or uniform mixture of both).

Stand-size class. A classification of forest land based on the size class (that is, seedlings, saplings, poletimber, or sawtimber) of all live trees in the area.

Standard cord. A unit of measure for stacked bolts of wood, encompassing 128 cubic feet of wood, bark, and air space. Fuelwood cord estimates can be derived from cubic-foot estimates of growing stock by applying an average factor of 80 cubic feet of solid wood per cord. For pulpwood, a conversion of 85 cubic feet of solid wood per cord is used because pulpwood is more uniform.

Standard-lumber log grade. A classification of sawtimber quality based on standard sawlog grades for hardwoods, white pine, and southern pine. (Note: Red pine was graded using the guidelines for southern pine. All specifications are shown under Log-Grade Classification.)

State lands. Lands owned by the state or leased to the state for 50 years or more.

Stocking. The degree of occupancy of land by trees, measured by basal area and/or number of trees in a stand compared to the basal area and/or number of trees required to fully use the growth potential of the land (or the stocking standard). In the Eastern United States this standard is 75 square feet of basal area per acre for trees 5.0 inches d.b.h. and larger, or its equivalent in numbers of trees per acre for seedlings and saplings.

Two categories of stocking are used in this report: all live trees and growing-stock trees. The relationships between the classes and the percentage of the stocking standard are: nonstocked (0 to 9); poorly stocked (10 to 59); moderately stocked (60 to 99); fully stocked (100 to 129); and overstocked (130 to 160).

Strip mine. Area devoid of vegetation due to current or recent general excavation.

Stump. The main stem of a tree from ground level to 1 foot above ground level, including the wood and bark.

Timberland. Forest land producing or capable of producing crops of industrial wood (more than 20 cubic feet per acre per year) and not withdrawn from timber utilization (formerly known as commercial forest land).

Timber products. Roundwood (round timber) products and manufacturing plant by-products harvested from growing-stock trees on timberland; from other sources, such as cull trees, salvable dead trees, limbs, tops, and saplings; and from trees on noncommercial forest and nonforest lands.

Timber removals. The growing-stock or sawtimber volume of trees removed from the inventory for roundwood products, plus logging residues, volume destroyed during land clearing, and volume of standing trees on land that was reclassified from timberland to noncommercial forest land (See Table 50).

Top. The wood and bark of a tree above the merchantable height (or above the point on the stem 4.0 inches in diameter outside bark); generally includes the uppermost stem, branches, and twigs of the tree, but not the foliage.

Tract/multiple family housing. Multiple individual residential units or attached units (e.g., apartment buildings and condominiums) and immediately adjacent managed land.

Transportation right-of-way. Land associated with highways and railroads.

Tree class. A classification of the quality or condition of trees for sawlog production. Tree class for sawtimber trees is based on their current condition. Tree class for poletimber trees is a prospective determination--a forecast of their potential quality when they reach sawtimber size (11.0 inches d.b.h. for hardwoods, 9.0 inches d.b.h. for softwoods).

Tree grade. A classification of sawtimber quality based on guidelines for tree grades for hardwoods, white pine, and southern pine. (Note: Red pine was graded using the guidelines for southern pine. All specifications are shown under Tree-Grade Classification.)

Trees. Woody plants that have well-developed stems and that usually are more than 12 feet tall at maturity.

Unproductive forest land. See Other forest land.

Unused manufacturing residues. Plant residues that are dumped or destroyed and not recovered for plant by-products.

Upper-stem portion. That part of the main stem or fork of a sawtimber tree above the sawlog top to a diameter of 4.0 inches outside bark, or to the point where the main stem or fork breaks into limbs.

Urban forest land. Forest land sufficiently productive to qualify as timberland that is completely surrounded by or nearly surrounded by urban development (not parks), whether commercial, industrial, or residential.

Utility right-of-way. Land associated with pipeline and electric transmission lines; identified only if vegetative cover differs from adjacent land use.

Veneer log or bolt. A roundwood product from which veneer is sliced or sawn that usually meets certain minimum standards of diameter, length, and defect.

Volume suitable for pulpwood. The sound volume (only rotten cull excluded) of growing-stock and rough trees.

Windbreak/hedgerow. Linear areas, less than 120 feet in width, with predominantly tree and/or shrub vegetation.

References

Considine, Thomas J., Jr.; Powell, Douglas S. 1980. **Forest Statistics for Pennsylvania--1978**. Resour. Bull. NE-65. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 88 p.

Scott, Charles T. 1979. **Northeastern forest survey board-foot volume equations**. Res. Note NE-271. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 3 p.

Scott, Charles T. 1981. **Northeastern forest survey revised cubic-foot volume equations**. Res. Note NE-304. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 3 p.

Oaks of the Northeast

Species Group	Common Name
Select White Oaks	
Quercus alba	white oak
Q. bicolor	swamp white oak
Q. macrocarpa	bur oak
Q. michauxii	swamp chestnut oak
Q. muehlenbergii	chinkapin oak
Select Red Oaks	
Q. falcata var. *pagodifolia*	cherrybark oak
Q. rubra	northern red oak
Q. shumardii	shumard oak
Other White Oaks	
Q. lyrata	overcup oak
Q. prinus	chestnut oak
Q. stellata	post oak
Other Red Oaks	
Q. coccinea	scarlet oak
Q. ellipsoidalis	northern pin oak
Q. falcata	southern red oak
Q. ilicifolia	bear oak
Q. imbricaria	shingle oak
Q. laurifolia	laurel oak
Q. marilandica	blackjack oak
Q. nigra	water oak
Q. palustris	pin oak
Q. phellos	willow oak
Q. velutina	black oak

Tree Species of Pennsylvania (as encountered on field plots)

Scientific Name ***	Common Name(s)	Occurrence **
	Softwoods	
Chamaecyparis thyoides (L.) B.S.P.	Atlantic white-cedar	vr
Juniperus virginiana L.	eastern redcedar	r
Larix Mill.	larch (introduced)	r
L. laricina (Du Roi) K. Koch	tamarack (native)	r
Picea abies (L.) Karst.	Norway spruce	r
P. glauca (Moench) Voss	white spruce	r
P. mariana (Mill.) B.S.P.	black spruce	vr
P. pungens Engelm.	blue spruce	vr
P. rubens Sarg.	red spruce	vr
Pinus banksiana Lamb.	jack pine	vr
P. echinata Mill.	shortleaf pine	vr
P. pungens Lamb.	Table Mountain pine	vr
P. resinosa Ait.	red pine	c
P. rigida Mill.	pitch pine	c
P. strobus L.	eastern white pine	c
P. sylvestris L.	Scotch pine	r
P. virginiana Mill.	Virginia pine	c
P. nigra Arnold	Austrian pine	vr
Tsuga canadensis (L.) Carr.	eastern hemlock	vc
	Hardwoods	
Acer negundo L.*	boxelder	r
A. pensylvanicum L.*	striped maple	r
A. platanoides L.	Norway maple	vr
A. rubrum L.	red maple	vc
A. saccharinum L.	silver maple	r
A. saccharum Marsh.	sugar maple	vc
A. spicatum Lam.*	mountain maple	vr
Ailanthus altissima (Mill.)Swingle*	ailanthus	vr
Amelanchier Medic.*	serviceberry	c
Betula alleghaniensis Britton	yellow birch	c
B. lenta L.	sweet birch	vc
B. nigra L.	river birch	vr
B. papyrifera Marsh.	paper birch	r
B. populifolia Marsh.*	gray birch	r
Carpinus caroliniana Walt.*	American hornbeam	r
Carya Nutt.	hickory	c

Tree Species of Pennsylvania (continued)

Scientific Name ***	Common Name(s)	Occurrence **
Castanea dentata (Marsh.)Borkh.*	American chestnut	vr
Catalpa Scop.*	catalpa	vr
Celtis occidentalis L.	hackberry	vr
Cercis canadensis L.*	eastern redbud	vr
Cornus florida L.	flowering dogwood	r
Crataegus L.*	hawthorn	r
Diospyros virginiana L.	persimmon	vr
Fagus grandifolia Ehrh.	American beech	c
Fraxinus americana L.	white ash	c
F. nigra Marsh.	black ash	vr
F. pennsylvanica Marsh.	green ash	r
Gleditsia triacanthos L.	honeylocust	vr
Juglans cinerea L.	butternut	r
J. nigra L.	black walnut	r
Liquidambar styraciflua L.	sweetgum	vr
Liriodendron tulipifera L.	yellow-poplar (tulip tree)	c
Maclura pomifera (Raf.)*	osage-orange	vr
Magnolia L.	magnolia	vr
M. acuminata L.	cucumbertree	r
Malus Mill.*	apple	r
Morus L.*	mulberry	vr
Nyssa sylvatica Marsh.	blackgum	c
Ostrya virginiana (Mill.)K. Koch*	eastern hophornbeam	c
Platanus occidentalis L.	American sycamore	r
Populus balsamifera L.	balsam poplar	vr
P. deltoides Bartr. ex Marsh.	eastern cottonwood	r
P. grandidentata Michx.	bigtooth aspen	c
P. tremuloides Michx.	quaking aspen	c
Prunus L.*	cherry, plum	r
Prunus pensylvanica L. f.*	pin cherry	r
P. serotina Ehrh.	black cherry	vc
P. virginiana L.*	chokecherry	vr
Quercus alba L.	white oak	c
Q. bicolor Willd.	swamp white oak	r
Q. coccinea Muenchh.	scarlet oak	c
Q. falcata Michx.	southern red oak	vr
Q. ilicifolia Wangenh.*	bear oak	vr
Q. imbricaria Michx.	shingle oak	r
Q. macrocarpa Michx.	bur oak	vr
Q. muehlenbergii Engelm.	chinkapin oak	vr

Tree Species of Pennsylvania (continued)

Scientific Name ***	Common Name(s)	Occurrence **
Q. palustris Muenchh.	pin oak	r
Q. prinus L.	chestnut oak	vc
Q. rubra L.	northern red oak	vc
Q. velutina Lam.	black oak	c
Robinia pseudoacacia L.	black locust	c
Salix L.*	willow	vr
Salix nigra Marsh.	black willow	r
Sassafras albidum (Nutt.) Nees*	sassafras	c
Sorbus americana Marsh.*	American mountain-ash	vr
Tilia L.	basswood	vr
Tilia americana L.	American basswood	c
Ulmus L.	elm	vr
U. americana L.	American elm	c
U. rubra Muhl.	slippery elm	c
U. thomasii Sarg.	rock elm	vr

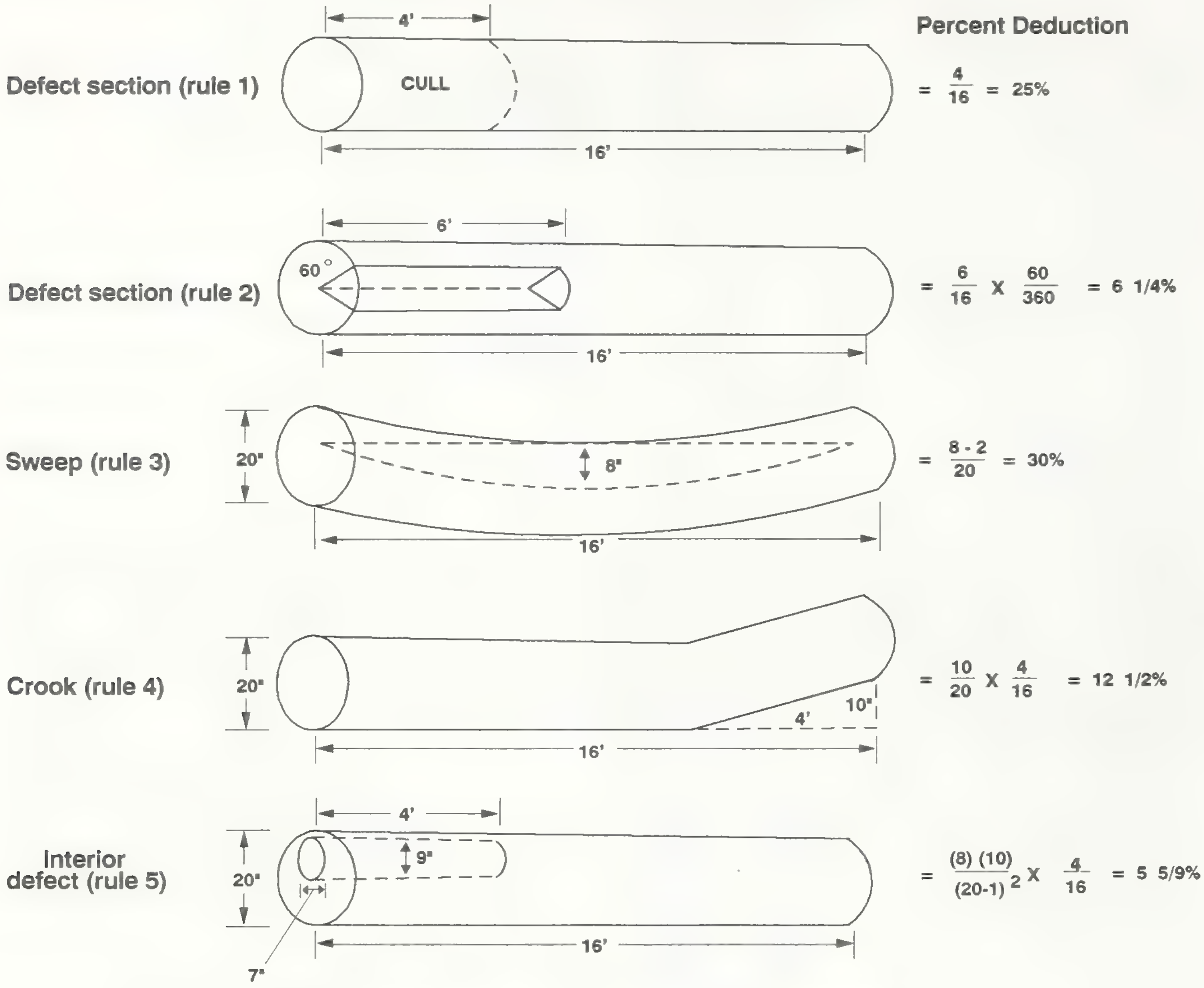
*** Names according to: Little, Elbert L., Jr. 1979. Checklist of United States Trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S Department of Agriculture. 375 p.

** Occurrence is based on the proportion of the species among all live trees 5.0 inches d.b.h. or larger encountered on forest survey field plots: vr = very rare (<0.05%), r = rare (0.05 to 0.49%), c = common (0.5 to 4.9%), and vc = very common (≥5.0%).

* Noncommercial species.

Log-Grade Classification

Methods of determining scaling deduction.
(Examples based on a 16-foot log with 20-inch scaling diameter)



From: Grosenbaugh, L. R. 1952. Shortcuts for cruisers and scalers. U.S. Dep. Agric. For. Serv. South. For. Exp. Stn. Occas. Pap. 126.

SPRUCE, FIR, CEDAR, TAMARACK, AND HEMLOCK LOGS

Minimum Merchantability Specifications for Grade One Logs

DIB[1]	Length[2]	Total deduction	Sweep permitted	Other requirements
6" - 12"	8' - 16' in 2-foot multiples.	50%	25%	Sound knots not over 2" in diameter permitted. Shake permitted up to 20% of gross scale if not combined with other serious defect.
13" +	8' - 16' in 2-foot multiples.	50%	25%	Sound knots not over 3" in diameter permitted. Shake permitted up to 20% of gross scale if not combined with other serious defect.

1...at small end of log.
2...without trim.

Log-Grade Classification (continued)

STANDARD GRADES FOR HARDWOOD FACTORY LUMBER LOGS

Grading Factors		Log grades							
		F1			F2				F3
Position in tree		Butts only	Butts & uppers		Butts & uppers				Butts & uppers
Scaling diameter, inches		13-15[a]	16-19	20+	11+[b]	12+			8+
Length without trim, feet		10+			10+	8-9	10-11	12+	8+
Required clear cuttings[c] of each of 3 best faces[d]	Min. length, feet	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	No limit
	Min. proportion of log length required in clear cutting	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Maximum sweep & crook allowance	For logs with less than 1/4 of end in sound defects	15%			30%				50%
	For logs with more than 1/4 of end in sound defects	10%			20%				35%
Maximum scaling	deduction	40%[e]			50%[f]				50%

End defects, although not visible in standing trees, are important in grading cut logs. Instructions for dealing with this factor are contained in Forest Prod. Lab. Rpt. D 1737.

[a] Ash and basswood butts can be 12 inches if they otherwise meet requirements forsmall #1's.

[b] Ten-inch logs of all species can be #2 if they otherwise meet requirements for small #1's.

[c] A clear cutting is the portion of a face, extending the width of the face, that is free of defects.

[d] A face is 1/4 of the surface of the log as divided lengthwise.

[e] Otherwise #1 logs with 41-60% deductions can be #2.

[f] Otherwise #2 logs with 51-60% deductions can be #3.

From: Vaughan, C. L., A. C. Wollin, K. A. McDonald, and E. H. Bulgrin. 1966. Hardwood log grades for standard lumber. USDA For. Serv. Res. Pap. FPL-63.

STANDARD SPECIFICATIONS FOR HARDWOOD CONSTRUCTION LOGS [a]

Position in tree		Butt & upper
Min. diameter, small end		8 inches +
Min. length, without trim		8 feet
Clear cuttings		No requirements.
Sweep allowance, absolute		1/4 diameter small end for each 8 feet of length
Sound surface defects	Single knots	Any number, if no one knot has an average diameter above the callus in excess of 1/3 of log diameter at point of occurrence.
	Whorled knots	Any number if sum of knot diameters above the callus does not exceed 1/3 of log diameter at point of occurrence.
	Holes	Any number provided none has a diameter over 1/3 of log diameter at point of occurrence, and none extends over 3 inches into included timber.[b]
Unsound surface defects		Same requirements as for sound defects if they extend into included timber.[b] No limit if they do not.
End defects	Sound	No requirements.
	Unsound	None allowed; log must be sound internally, but will admit 1 shake not to exceed 1/4 the scaling diameter and a longitudinal split not extending over 5 inches into the contained timber.

[a] These specifications are minimum for the class. If, from a group of logs, factory logs are selected first, thus leaving only nonfactory logs from which to select construction logs, then the quality range of the construction logs so selected is limited, and the class may be considered a grade. If selection for construction logs is given first priority, then it may be necessary to subdivide the class into grades.

[b] Included timber is always square, and dimension is judged from small end.

From: Rast, E. D., D. L. Sonderman, and G. L. Gammon. 1973. A guide to hardwood log grading (Revised). USDA For. Serv. Gen. Tech. Rep. NE-1.

Log-Grade Classification (continued)

EASTERN WHITE PINE SAWLOG GRADE SPECIFICATIONS

GRADING FACTOR	LOG GRADE 1	LOG GRADE 2	LOG GRADE 3	LOG GRADE 4
(1) Minimum scaling diameter (inches)	14[1]	6	6	6
(2) Minimum log length (feet)	10[2]	8	8	8
(3) Maximum weevil injury (number)	None	None	2 injuries[3]	No limit
(4) Minimum face requirements	Two full length or four 50% length good faces.[4] (In addition, log knots on balance of faces shall not exceed size limitations of grade 2 logs.)	No GOOD faces required. Maximum diameter of log knots on three best faces: SOUND RED KNOTS not to exceed 1/6 scaling diameter and 3 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/12 scaling diameter and $1\frac{1}{2}$ inch maximum.	SOUND RED KNOTS not to exceed 1/3 scaling diameter and 5 inch maximum. DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/6 scaling diameter and $2\frac{1}{2}$ inch maximum.	Includes all logs not qualifying for No. 3 or better and judged to have at least one-third of their gross volume in sound wood suitable for manufacture into standard lumber.
(5) Maximum sweep or crook allowance (percent)	20	30	40	$66\frac{2}{3}$
(6) Maximum total scaling deduction (percent)	50	50	50	$66\frac{2}{3}$

After the tentative log grade is established from face examination, the log will be reduced in grade whenever the following defects are evident:

(7) Conks, punk knots, and pine borer damage on bark surface[5]

Degrade one grade if present on one face.
Degrade two grades if present on two faces.
Degrade three grades if present on three or more faces.

(8) Log end defects: red rot, ring shake, and pine borer damage outside heart center of log[5]

Consider log as having a total of 8 quarters (4 on each end) and degrade as indicated below:
Degrade one grade if present in 2 quarters of log ends.
Degrade two grades if present in 3 or 4 quarters of log ends.
Degrade three grades if present in 5 or more quarters of log ends.

[1] 12 and 13 inch logs with four full length good faces are acceptable.
[2] 8 foot logs with four full length good faces are acceptable.
[3] 8 foot No. 3 logs limited to one weevil injury.
[4] Minimum 50% length good face must be at least 6 feet.
[5] Factors 7 and 8 are not cumulative (total degrade based on more serious of the two). No log to be degraded below grade 4 if net scale is at least one-third gross log scale.

From: Ostrander, M. D., and R. L. Brisbin, 1971. Sawlog grades for eastern white pine. USDA For. Serv. Res. Pap. NE-205.

SOUTHERN PINE SAWLOG GRADE SPECIFICATIONS

GRADE 1 - Logs with 3 or 4 clear faces.[1] Code 1.
GRADE 2 - Logs with 1 or 2 clear faces. Code 2.
GRADE 3 - Logs with no clear faces. Code 3.

After the tentative log grade is established from above, the log will be degraded one grade for each of the following, except that no log can be degraded below grade 3.

1. SWEEP - Degrade any tentative 1 or 2 log one grade if sweep amounts to 3 or more inches and equals or exceeds one third (1/3) the diameter inside the bark at small end. This is the final grade if there is no evidence of heart rot.
2. HEART ROT - Degrade any tentative 1 or 2 log one grade if conk, massed hyphae, or other evidence of advanced heart rot is found anywhere in it.

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[1] A face is one-fourth of the circumference in width extending full length of the log. Clear faces are those free of: knots measuring more than 1/2 inch in diameter, overgrown knots of any size, holes more than 1/4 inch in diameter. The faces may be rotated if necessary to obtain the maximum number of clear ones.

From: Schroeder, J. G., R. A. Campbell, and R. C. Rodenbach. 1968. Southern pine sawlogs for yard and structural lumber. USDA For. Serv. Res. Pap. SE-39.

Tree-Grade Classification

HARDWOOD TREE GRADES

GRADE FACTOR	TREE GRADE 1	TREE GRADE 2	TREE GRADE 3
Length of grading zone (feet)	Butt 16	Butt 16	Butt 16
Length of grading section[a] (feet)	Best 12	Best 12	Best 12
Minimum DBH (inches)	16[b]	13	10
Minimum diameter inside bark at top of grading section (inches)	13[b] 16 20	11[c] 12	8
Clear cuttings on 3rd best face[d]			
minimum length (feet)	7 5 3	3 3	2
number on face (maximum)	2	2 3	unlimited
yield in face length (minimum)	5/6	4/6	3/6
Cull deduction, including crook and sweep but excluding shake, maximum within grading section (%)	9	9[e]	50

[a] Whenever a 14- or 16-foot section of the butt 16-foot log is better than the best 12-foot section, the grade of the longer section will become the grade of the tree. This longer section, when used, is the basis for determining the grading factors, such as diameter and cull deduction.

[b] In basswood and ash, diameter inside bark at the top of the grading section must be 12 inches and DBH must be 15 inches.

[c] Grade 2 trees can be 10 inches diameter inside bark at the top of the grading section if otherwise meeting surface requirements for small grade 1's.

[d] A clear cutting is a portion of a face free of defects, extending the width of the face. A face is one-fourth of the surface of the grading section as divided lengthwise.

[e] Fifteen percent crook and sweep, or 40 percent total cull deduction are permitted in grade 2 if size and surface of grading section qualify as grade 1. If rot shortens the required clear cuttings to the extent of dropping the butt log to grade 2, do not drop the tree's grade to 3 unless the cull deduction for rot is greater than 40 percent.

HARDWOOD TREE GRADE 4 - Use STANDARD SPECIFICATIONS FOR HARDWOOD CONSTRUCTION LOGS under Log-Grade Classification

Tree-Grade Classification (continued)

EASTERN WHITE PINE TREE GRADE SPECIFICATIONS

GRADING FACTOR	TREE GRADE 1	TREE GRADE 2	TREE GRADE 3	TREE GRADE 4
(1) Minimum DBH (inches)	10	10	10	10
(2) Maximum weevil injury in butt 16-ft. section (number)	None	None	2 injuries	No limit
(3) Minimum face requirements on butt 16-ft. section	Two full length or four 50% length good faces.[1] (In addition, knots on balance of faces shall not exceed size limitations of Grade 2 sections.)	No GOOD faces required. Maximum diameter of log knots on three best faces: SOUND RED KNOTS not to exceed 1/6 scaling diameter and 3 inch maximum.[2] DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/12 scaling diameter and 1½ inch maximum.[2]	SOUND RED KNOTS not to exceed 1/3 scaling diameter and 5 inch maximum.[2] DEAD OR BLACK KNOTS including overgrown knots not to exceed 1/6 scaling diameter and 2½ inch maximum.[2]	Includes all trees not qualifying for Grade 3 or better and judged to have at least one-third of their gross volume in sound wood suitable for manufacture into standard lumber.
(4) Maximum sweep or crook in butt 16-ft. section (percent)	20	30	40	No limit
(5) Maximum total scaling deduction in butt 16-ft. section (percent)	50	50	50	No limit

After the tentative grade of the section is established from face examination, the section will be reduced in grade whenever the following defects are evident:

(6) Conks, punk knots, and pine borer damage on surface of section [3]

Degrade one grade if present on one face.
Degrade two grades if present on two faces.
Degrade three grades if present on three or more faces.

(7) If the final grade of the grading section is 1, 2, or 3, examine the tree for weevil injuries in the merchantable stem *above* 16 ft. If the total apparent weevil injuries exceed three, degrade the tree one grade below the section grade.[3] Otherwise the tree grade is the same as the final section grade.

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[1] Trees under 16 inches DBH require four full length good faces.

[2] Scaling diameter is estimated at the top of the 16-foot grading section.

[3] No tree will be designated below Grade 4 unless net tree scale is less than one-third of gross tree scale.

Tree-Grade Classification (continued)

SOUTHERN PINE TREE GRADES

Grade 1 - trees with 3 or 4 clear faces on the 16-foot grading section.

Grade 2 - trees with 1 or 2 clear faces on the 16-foot grading section.

Grade 3 - trees with no clear faces on the 16-foot grading section.

After the tentative grade is established, the tree will be reduced one grade for each of the following:

(1) Sweep. Degrade any tentative Grade 1 or 2 tree one grade if sweep in the lower 12 feet of the grading section amounts to 3 or more inches and equals or exceeds one-fourth the diameter at breast height.

(2) Heart rot. Degrade any tentative Grade 1 or 2 tree one grade if conks, punk knots, or other evidence of advanced heart rot is found anywhere on the tree stem.

NOTE: No tree can be degraded below Grade 3, provided the total scaling deductions for sweep and/or rot do not exceed two-thirds the gross scale of the tree. Trees with total scaling deductions in excess of two-thirds are classified as cull.

A face is one-fourth the circumference of the 16-foot grading section and extends the full length of the grading section. Clear faces are those free from knots measuring more than 1/2 inch in diameter, overgrown knots of any size, and holes more than 1/4 inch in diameter. Faces may be rotated, if necessary, to obtain the maximum number of clear faces on the grading section.

One-log trees should be graded by using the Southern Pine Log Grades. This is recommended because the entire merchantable volume of the tree is contained in the graded section. The log grading system gives a more accurate prediction of the lumber grade-yields for such trees than would the tree grading system.

TREE GRADE 5 (ALL SPECIES)

Any tree which does not make tree grade 1,2, or 3 (or 4) but is still a merchantable tree.

Metric Equivalents

1 acre = 4,046.86 square meters
1 acre = 0.404686 hectares
1,000 acres = 404.686 hectares
1,000,000 acres = 404,686 hectares
1 board foot = 0.00348 cubic meters
1 board foot = 3,480 cubic centimeters
1,000 board feet = 3.48 cubic meters
1,000,000 board feet = 3,480 cubic meters
1 cubic foot = 0.028317 cubic meters
1,000 cubic feet = 28.317 cubic meters
1,000,000 cubic feet = 28,317 cubic meters
1 cord (wood, bark, and air space) = 3.6246 cubic meters
1 cord (solid wood, pulpwood) = 2.4069 cubic meters
1 cord (solid wood, other than pulpwood) = 2.2654 cubic meters
1,000 cords (pulpwood) = 2,406.9 cubic meters
1,000 cords (other products) = 2,265.4 cubic meters
1 inch = 2.54 centimeters or 0.0254 meters
1 foot = 30.48 centimeters or 0.3048 meters
1 mile = 1.609 kilometers
1 square foot = 929.03 square centimeters
1 square foot = 0.0929 square meters
1 square foot per acre basal area = 0.229568 square meters per hectare
1 cubic foot per acre = 0.0699 cubic meters per hectare
1 ton = 907.1848 kilograms
1,000 tons = 907.1848 metric tons
Breast height = 1.4 meters above ground level

Although 1,000 board feet is theoretically equivalent to 2.36 cubic meters, this is true only when a board foot is actually a piece of wood with a volume 1/12 of a cubic foot. The International 1/4-inch log rule is used by the USDA Forest Service in the East to estimate the product potential in board feet. The reliability of the estimate obtained by conversion will vary with the size of the log measure. The conversion given here, 3.48 cubic meters, is based on the cubic volume of a log 16 feet long and 15 inches in diameter inside bark (d.i.b.) at the small end. This conversion could be used for average comparisons when accuracy of 10 percent is acceptable. Because the board foot unit is not a true measure of wood volume and because products other than dimension lumber are becoming important, this unit may eventually be phased out and replaced by the cubic meter.

Index to Tables

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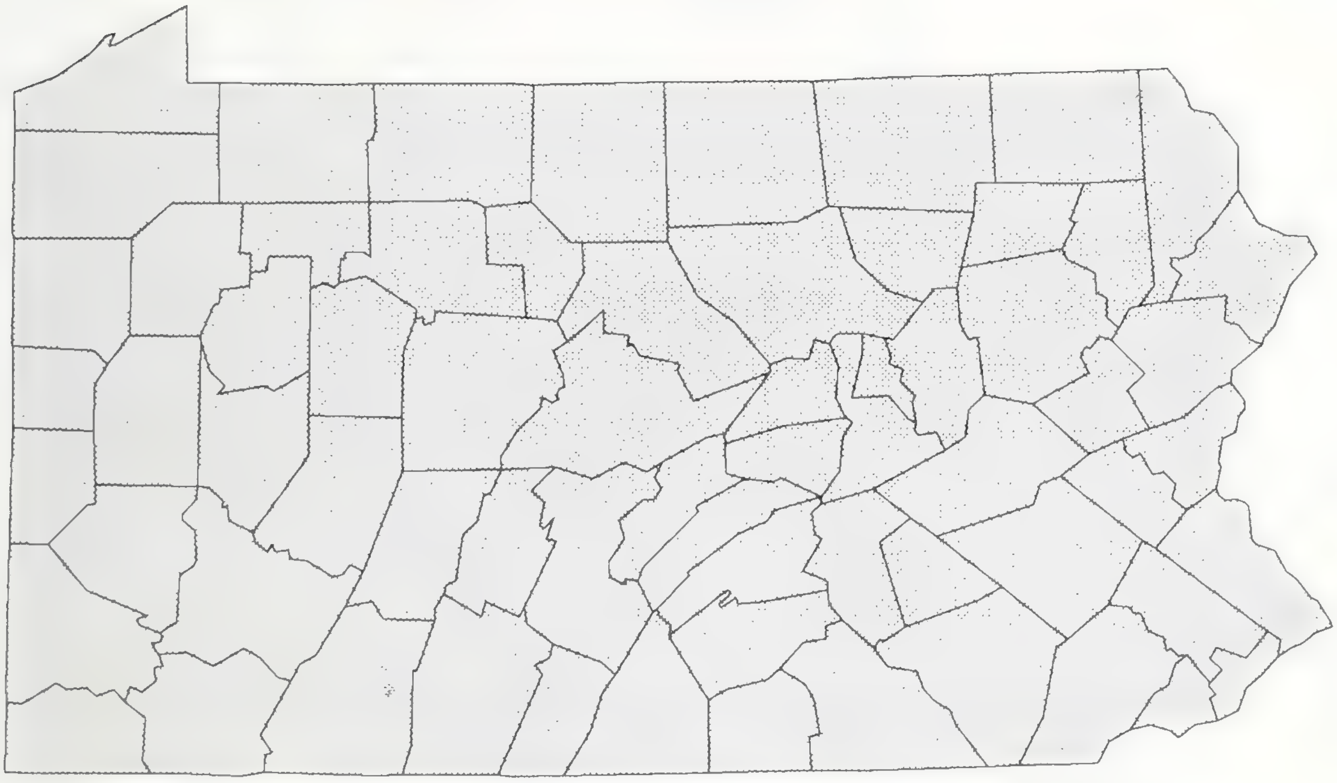

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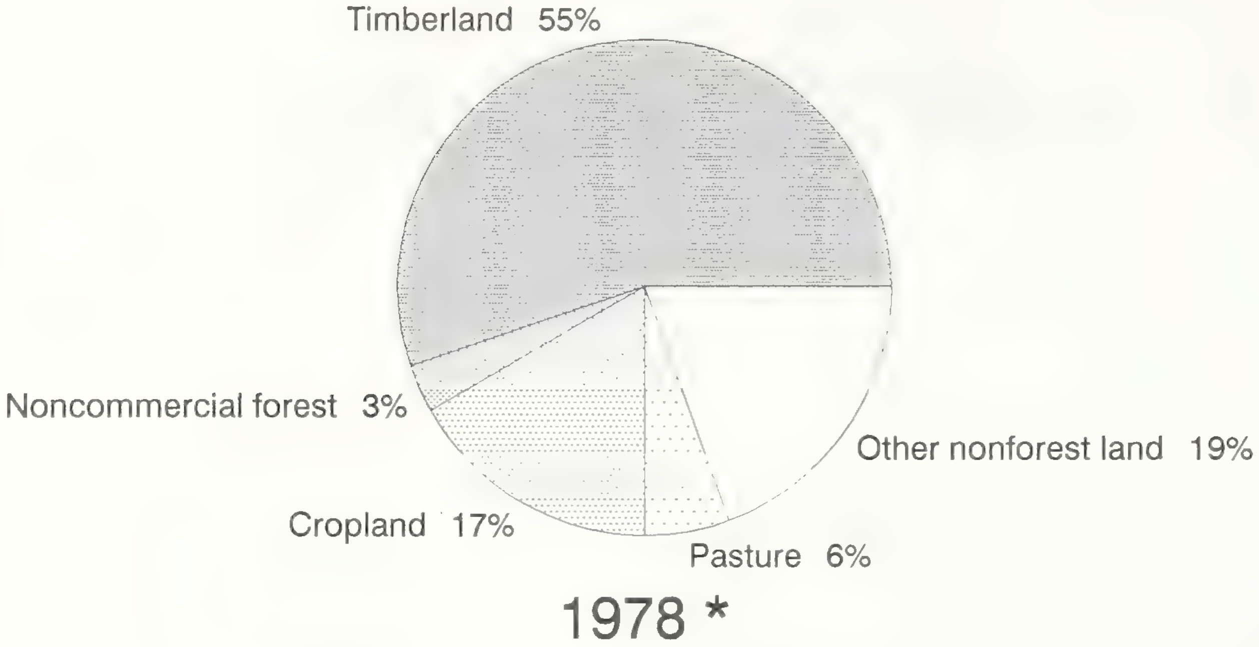
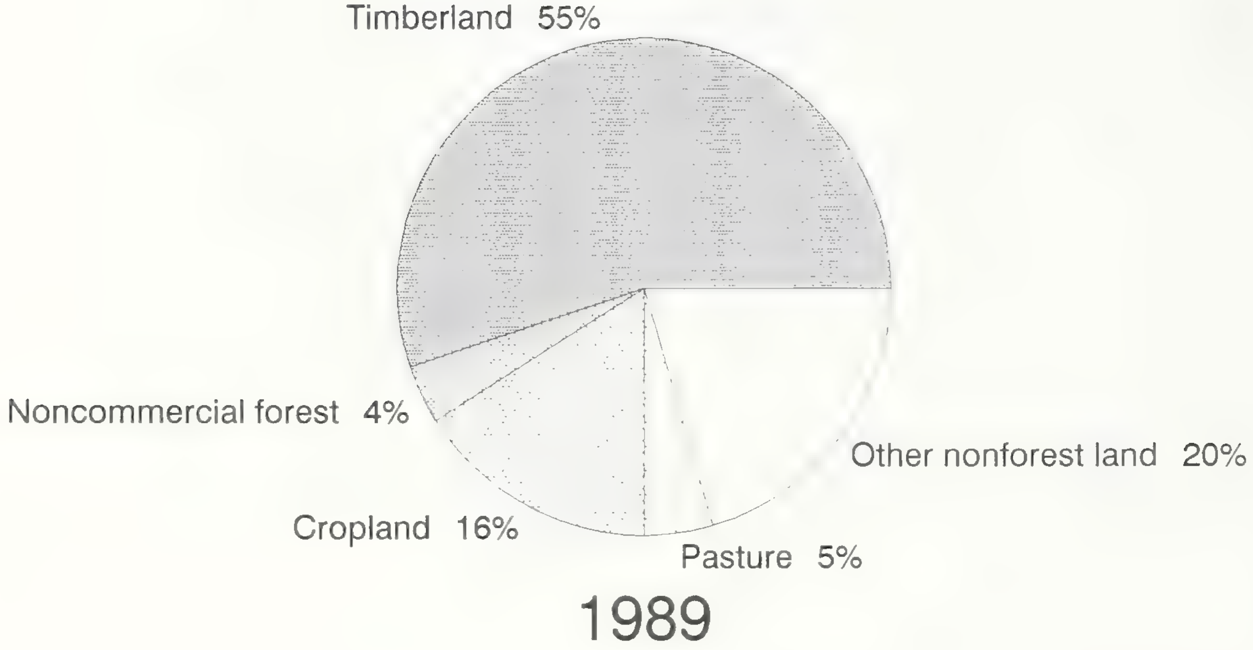




* Source: Forest Statistics for
Pennsylvania--1978; RB NE-65.

Table 1.--Land area by land class, Pennsylvania, 1989[a]

(In thousands of acres)[b]

Land class	Area	Percent
Timberland	15,872.8	55.3
Noncommercial forest land:		
Reserved productive[cd]	815.6	2.8
Urban forest land	141.4	.5
Other forest land[e]	77.3	.3
Christmas tree plantations	66.3	.3
Reserved other forest land	19.3	
Total noncommercial forest land	1,119.9	3.9
Total forest land	16,992.7	59.2
Nonforest land:		
Cropland[f]	4,595.4	16.0
Pasture[f]	1,284.3	4.4
Other	5,855.9	20.4
Total nonforest land	11,735.6	40.8
Total land area[g]	28,728.3	100.0

[a] In this and other tables, a zero indicates that the data are negligible or the condition was not encountered in the sample. A dash indicates that the condition is not possible under current Forest Service definitions.

[b] Rows and columns in all tables may not sum due to rounding.

[c] Includes an estimated 27,200 acres of county- and municipally-owned reserved timberland.

[d] Includes 293,400 acres of State Forest land that would have been classified as unproductive at the 1978 occasion. This land is not unproductive by Forest Service standards, but the Bureau of Forestry anticipates no management practices on these lands due to shortness of stem, excessive rocks, or steepness of terrain.

[e] "Other forest land" formerly known as unproductive forest land.

[f] Source: 1987 Census of Agriculture.

[g] Source: 1980 United States Department of Commerce, Bureau of Census.

Table 2.--Area of timberland by forest type, forest-type group, and stand-size class, Pennsylvania, 1989

(In thousands of acres)

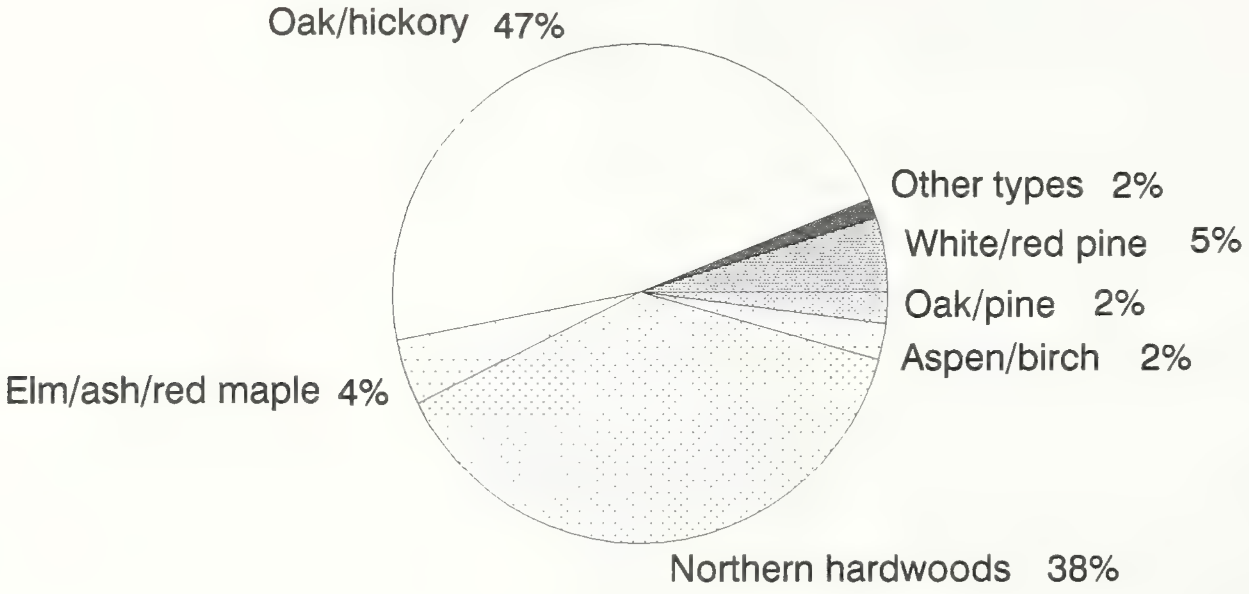
Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Jack pine	.0	5.6	.0	.0	5.6	100.0
Red pine	26.4	13.8	10.9	.0	51.2	31.4
White pine	165.2	65.5	44.4	.0	275.2	13.9
White pine/hemlock	.0	6.3	.0	.0	6.3	100.0
Hemlock	325.9	62.2	22.1	.0	410.3	11.1
Scotch pine	11.3	38.0	.0	.0	49.3	33.5
White/red pine group	528.9	191.5	77.5	.0	797.8	7.9
White spruce	.0	16.3	.0	.0	16.3	57.8
Norway spruce	8.9	17.0	5.8	.0	31.8	39.4
Tamarack	.0	.0	11.6	.0	11.6	71.1
Larch plantation	.0	.0	5.0	.0	5.0	100.0
Spruce/fir group	8.9	33.4	22.4	.0	64.7	28.4
Virginia pine	41.6	21.6	5.0	.0	68.2	26.1
Eastern redcedar	.0	.0	21.3	.0	21.3	50.2
Pitch pine	33.4	10.0	5.3	.0	48.7	32.3
Loblolly/shortleaf group	75.1	31.6	31.6	.0	138.2	18.8
Wh. pine/no. red oak/wh. ash	135.3	57.4	.0	.0	192.8	16.6
Eastern redcedar/hardwood	.0	.0	5.5	.0	5.5	100.0
Virginia pine/oak	12.3	26.0	10.9	.0	49.2	33.6
Other oak/pine	21.2	37.1	33.6	.0	91.8	24.2
Oak/pine group	168.8	120.5	50.0	.0	339.3	12.4
Post, black, or bear oak	88.5	16.4	11.1	.0	116.0	22.1
Chestnut oak	356.9	430.0	129.3	.0	916.2	7.4
White oak/red oak/hickory	403.1	273.8	65.5	.0	742.4	8.4
White oak	155.2	154.0	23.5	.0	332.7	12.7
Northern red oak	410.6	99.4	47.6	.0	557.6	9.7
Y. poplar/wh. oak/no. red oak	142.1	16.8	5.5	.0	164.3	18.1
Black locust	22.9	27.3	27.7	10.8	88.7	24.7
Black walnut	4.1	16.9	14.4	.0	35.4	38.2
Yellow-poplar	100.9	11.5	20.7	.0	133.2	19.5
Hawthorn/reverting field	.0	.0	166.0	.0	166.0	18.0
Scarlet oak	32.1	26.7	11.1	.0	69.9	28.0
Sassafras/persimmon	.0	11.0	15.4	.0	26.3	44.8
Red maple/central hardwoods	151.2	141.4	77.1	.0	369.7	12.1
Mixed central hardwoods	2,039.8	1,303.3	397.4	.0	3,740.6	3.2

Table 2.-continued

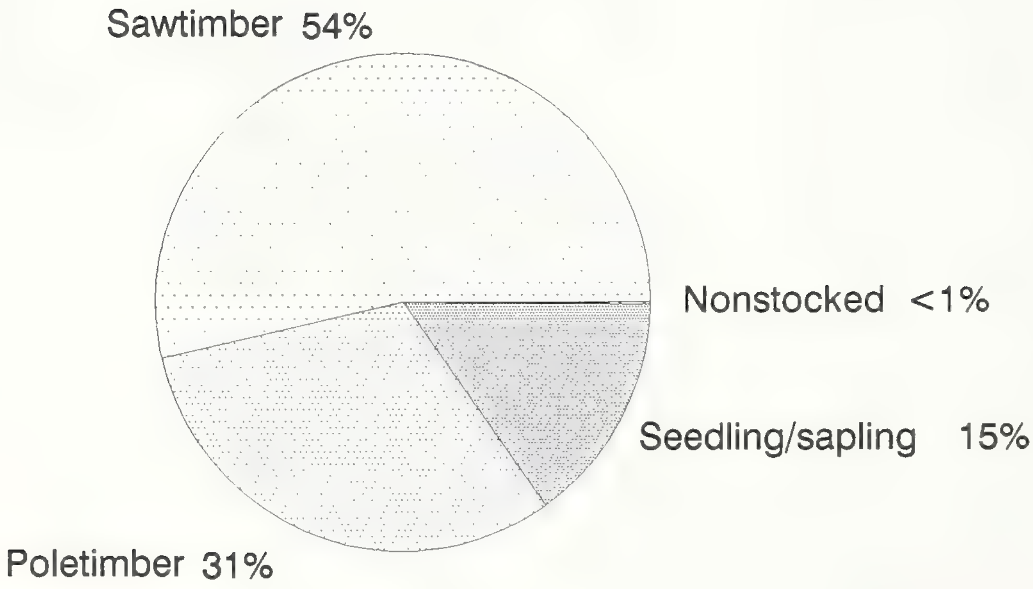
(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Oak/hickory group	3,907.5	2,528.5	1,012.2	10.8	7,459.0	1.8
Black ash/Amer. elm/red maple	116.5	26.1	27.2	.0	169.9	17.1
Red maple(lowland)	8.8	15.5	5.2	.0	29.5	41.2
Red maple(upland)	130.9	113.7	62.2	.0	306.9	13.2
River birch/sycamore	37.6	5.7	5.1	.0	48.3	33.4
Cottonwood	.0	12.3	.0	.0	12.3	70.7
Willow	15.7	16.7	27.2	.0	59.6	29.9
Sycamore/pecan/American elm	16.3	5.6	.0	.0	21.9	50.1
American elm/green ash	5.6	5.5	10.9	.0	21.9	50.0
Elm/ash/red maple group	331.6	201.1	137.8	.0	670.4	8.8
Sugar maple/beech/yellow birch	1,366.7	439.2	142.1	.0	1,948.0	4.6
Black cherry	637.1	370.5	258.6	4.4	1,270.6	5.9
Red maple/northern hardwoods	727.5	415.9	139.9	.0	1,283.3	6.1
Pin cherry/reverting field	5.4	24.0	200.6	11.0	240.9	14.9
Mixed northern hardwoods	700.2	439.1	166.3	.0	1,305.7	6.2
Northern hardwoods group	3,436.9	1,688.8	907.4	15.4	6,048.5	2.2
Aspen	52.3	150.3	128.7	.0	331.4	12.7
Paper birch	.0	6.6	.0	.0	6.6	100.0
Gray birch	.0	.0	16.8	.0	16.8	57.9
Aspen/birch group	52.3	156.9	145.6	.0	354.8	12.3
All forest types	8,509.9	4,952.2	2,384.5	26.2	15,872.8	.6
SE	1.7	2.8	4.2	44.9	.6	

Area of timberland by forest-type group and stand-size class, Pennsylvania, 1989



Forest-type group



Stand-size class

Table 3.--Area of timberland by forest-type group and stand-size class (based on growing-stock trees), Pennsylvania, 1978

(In thousands of acres)

Forest-type group	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White/red pine	370.6	143.9	71.7	.0	586.2	13
Spruce/fir	15.1	28.2	35.4	.0	78.7	42
Loblolly/shortleaf	49.1	45.5	103.1	.0	197.7	24
Oak/pine	53.6	72.1	7.5	.0	133.2	26
Oak/hickory	3,997.8	2,279.4	1,158.3	74.6	7,510.1	3
Oak/gum	.0	9.9	.0	.0	9.9	100
Elm/ash/red maple	187.5	168.7	201.9	41.5	599.6	14
Northern hardwoods	2,923.2	2,093.2	1,225.3	69.6	6,311.3	3
Aspen/birch	28.6	167.2	280.5	20.7	497.0	16
All groups	7,625.5	5,008.1	3,083.7	206.4	15,923.7	.6
SE	3	4	6	23	.6	

Table 4.--Area of timberland by forest-type group and stand-size class (based on growing-stock trees), Pennsylvania, 1989

(In thousands of acres)

Forest-type group	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White/red pine	518.8	207.9	71.1	.0	797.8	7.9
Spruce/fir	8.9	33.4	22.4	.0	64.7	28.4
Loblolly/shortleaf	70.1	36.5	31.6	.0	138.2	18.8
Oak/pine	174.3	115.7	49.3	.0	339.3	12.4
Oak/hickory	3,922.9	2,560.1	943.5	32.5	7,459.0	1.8
Elm/ash/red maple	320.2	218.6	121.2	10.5	670.4	8.8
Northern hardwoods	3,360.1	1,773.7	870.6	44.0	6,048.5	2.2
Aspen/birch	41.3	173.5	128.6	11.4	354.8	12.3
All groups	8,416.7	5,119.5	2,238.3	98.4	15,872.8	.6
SE	1.7	2.7	4.4	23.6	.6	

Table 5.--Area of timberland by forest-type group and ownership class, Pennsylvania, 1989

(In thousands of acres)

Forest-type group	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
White/red pine	4.7	147.2	22.4	623.5	797.8
Spruce/fir	5.2	5.8	5.8	47.9	64.7
Loblolly/shortleaf	.0	31.9	.0	106.3	138.2
Oak/pine	3.2	74.5	5.1	256.5	339.3
Oak/hickory	62.1	1,616.5	179.9	5,600.5	7,459.0
Elm/ash/red maple	17.7	126.8	20.5	505.4	670.4
Northern hardwoods	370.5	843.6	368.6	4,465.8	6,048.5
Aspen/birch	1.7	66.3	10.6	276.2	354.8
All groups	465.2	2,912.5	612.9	11,882.2	15,872.8

Area of timberland by owner class, Pennsylvania, 1989

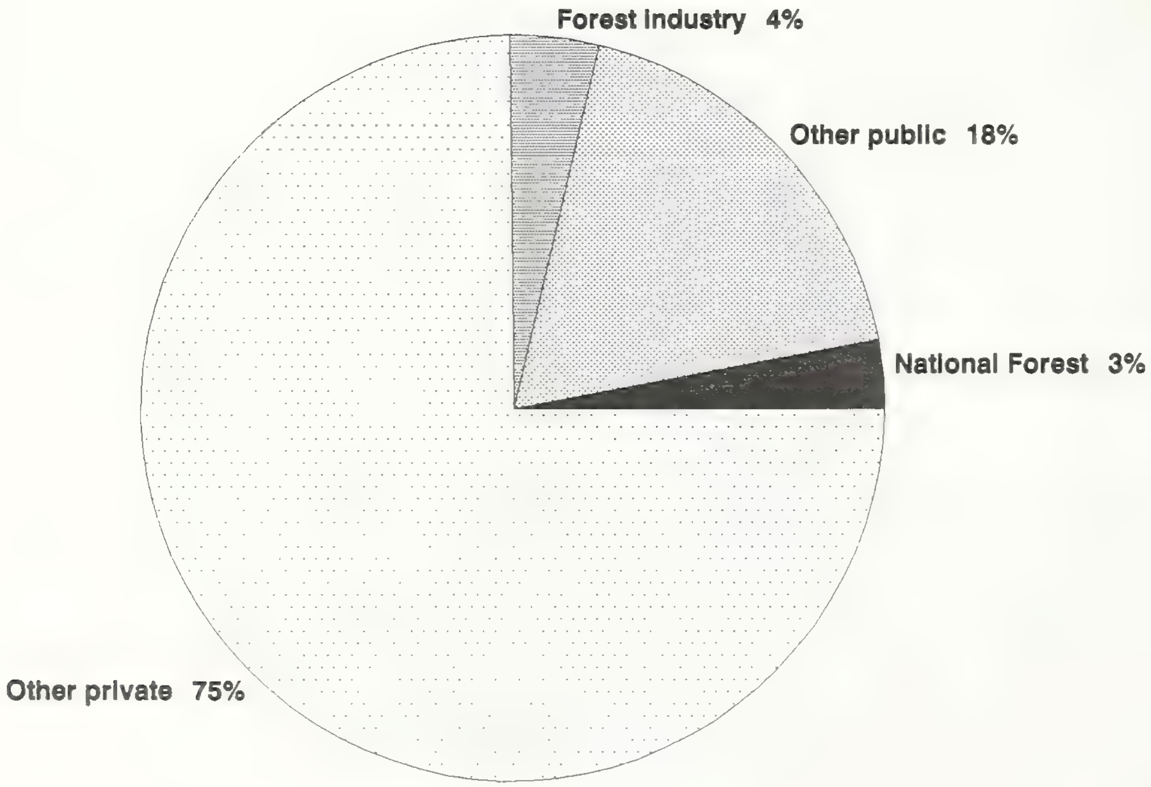


Table 6.--Area of timberland by stand-size class and ownership class, Pennsylvania, 1989

(In thousands of acres)

Stand-size class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Sawtimber	339.8	1,556.0	358.9	6,255.2	8,509.9
Poletimber	55.3	1,000.2	184.3	3,712.4	4,952.2
Sapling and seedling	70.1	356.3	69.6	1,888.5	2,384.5
Nonstocked	.0	.0	.0	26.2	26.2
All classes	465.2	2,912.5	612.9	11,882.2	15,872.8

Table 7.--Area of timberland by board-foot stand-volume class and ownership class, Pennsylvania, 1989

(In thousands of acres)

Stand-volume class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
0 - 1,999	88.7	978.8	135.8	4,303.2	5,506.5
2,000 - 3,999	39.5	619.0	124.1	2,749.8	3,532.4
4,000 - 5,999	34.9	450.7	129.3	1,903.6	2,518.5
6,000 - 7,999	49.0	343.0	107.4	1,382.0	1,881.4
8,000 - 9,999	73.4	231.1	67.0	773.0	1,144.5
10,000+	179.7	290.0	49.1	770.7	1,289.5
All classes	465.2	2,912.5	612.9	11,882.2	15,872.8

Table 8.--Area of timberland by stocking class of growing-stock trees and ownership class, Pennsylvania, 1989

(In thousands of acres)

Stocking class	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
Nonstocked	.0	11.2	.0	87.2	98.4
Poorly stocked	10.4	204.7	37.7	1,093.7	1,346.5
Moderately stocked	83.4	692.1	117.0	3,563.7	4,456.2
Fully stocked	160.7	1,028.5	228.7	4,316.7	5,734.6
Overstocked	210.7	976.0	229.4	2,821.0	4,237.1
All classes	465.2	2,912.5	612.9	11,882.2	15,872.8

Table 9.--Area of timberland by forest-type group and stocking class of all live trees, Pennsylvania, 1989

(In thousands of acres)

Forest-type group	Stocking class					All classes	SE
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked		
White/red pine	.0	37.7	123.5	251.9	384.7	797.8	7.9
Spruce/fir	.0	16.8	22.5	10.8	14.7	64.7	28.4
Loblolly/shortleaf	.0	11.0	27.0	53.6	46.7	138.2	18.8
Oak/pine	.0	16.3	75.1	137.8	110.1	339.3	12.4
Oak/hickory	10.8	258.4	1,608.9	3,075.1	2,505.8	7,459.0	1.8
Elm/ash/red maple	.0	64.6	175.8	270.5	159.5	670.4	8.8
Northern hardwoods	15.4	286.6	1,093.0	2,378.2	2,275.3	6,048.5	2.2
Aspen/birch	.0	31.8	108.3	120.7	94.0	354.8	12.3
All groups	26.2	723.1	3,234.1	6,298.5	5,590.8	15,872.8	.6
SE	44.9	8.4	3.7	2.4	2.5	.6	

Table 10.--Area of timberland by stand-size class, forest-type group, and basal-area class (all live trees), Pennsylvania, 1989

(In thousands of acres)

Forest-type group	Basal area class (square feet per acre)					All classes	SE
	0-49	50-99	100-149	150-199	200+		
Sawtimber:							
White/red pine	16.2	124.7	241.0	106.7	40.3	528.9	9.6
Spruce/fir	.0	.0	8.9	.0	.0	8.9	72.5
Loblolly/shortleaf	.0	37.5	32.3	5.2	.0	75.1	26.1
Oak/pine	10.9	44.1	65.7	48.2	.0	168.8	17.6
Oak/hickory	83.2	1,346.4	2,188.0	285.3	4.6	3,907.5	3.1
Elm/ash/red maple	15.3	187.6	121.7	6.9	.0	331.6	12.3
Northern hardwoods	102.9	973.3	1,780.2	556.1	24.4	3,436.9	3.3
Aspen/birch	10.5	11.3	24.7	5.7	.0	52.3	33.6
All type groups	239.0	2,724.9	4,462.5	1,014.2	69.3	8,509.9	1.7
Poletimber:							
White/red pine	35.4	81.8	43.4	20.1	10.7	191.5	16.7
Spruce/fir	5.8	21.8	5.8	.0	.0	33.4	40.8
Loblolly/shortleaf	5.1	5.8	20.7	.0	.0	31.6	40.1
Oak/pine	10.7	60.0	44.2	5.5	.0	120.5	21.3
Oak/hickory	105.3	1,446.3	955.4	21.5	.0	2,528.5	4.2
Elm/ash/red maple	20.7	102.6	72.1	5.8	.0	201.1	16.6
Northern hardwoods	140.6	712.7	767.7	67.8	.0	1,688.8	5.3
Aspen/birch	5.5	70.0	75.8	5.7	.0	156.9	18.8
All type groups	329.1	2,501.0	1,985.1	126.4	10.7	4,952.2	2.8
Seedling/sapling:							
White/red pine	55.5	22.0	.0	.0	.0	77.5	26.8
Spruce/fir	16.0	6.4	.0	.0	.0	22.4	50.2
Loblolly/shortleaf	26.6	5.0	.0	.0	.0	31.6	40.9
Oak/pine	33.7	16.3	.0	.0	.0	50.0	33.4
Oak/hickory	553.3	393.0	60.6	5.4	.0	1,012.2	7.0
Elm/ash/red maple	94.8	43.0	.0	.0	.0	137.8	20.1
Northern hardwoods	512.8	361.2	33.3	.0	.0	907.4	7.3
Aspen/birch	111.3	28.7	5.6	.0	.0	145.6	19.3
All type groups	1,403.9	875.7	99.5	5.4	.0	2,384.5	4.2
Nonstocked:							
Oak/hickory	10.8	.0	.0	.0	.0	10.8	70.7
Northern hardwoods	15.4	.0	.0	.0	.0	15.4	58.0
All type groups	26.2	.0	.0	.0	.0	26.2	44.9
All classes	1,998.1	6,101.7	6,547.1	1,146.0	80.0	15,872.8	.6
SE	4.7	2.4	2.2	6.4	24.5	.6	

Table 11.--Number of live trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	71,945	32,785	22,974	16,381	10,827	6,902	3,969	2,036
Virginia pine	10,137	10,829	6,647	4,662	3,306	1,600	533	65
Other yellow pines	2,520	8,841	9,520	7,577	4,558	2,286	1,315	436
Eastern hemlock	107,819	69,401	45,399	31,766	18,915	13,046	8,307	4,379
Other softwoods	21,756	16,546	7,640	3,864	1,711	624	470	55
Total softwoods	214,178	138,403	92,180	64,250	39,318	24,458	14,594	6,971
Red maple	817,032	382,992	204,512	125,912	75,399	43,547	25,867	12,163
Sugar maple	243,516	114,496	63,629	52,309	34,067	20,327	12,692	6,523
Yellow birch	30,506	15,214	11,871	10,107	5,300	3,109	1,536	550
Sweet birch	242,518	82,364	47,905	36,387	21,148	10,191	4,555	1,708
Hickory	71,598	31,050	16,827	14,920	11,246	6,305	3,627	1,771
Beech	314,370	74,035	39,230	22,019	13,495	9,148	5,736	4,194
White ash	144,048	46,145	26,625	18,514	15,172	10,839	6,659	4,091
Black walnut	5,266	4,951	4,116	3,198	1,453	1,278	881	409
Yellow-poplar	33,318	12,291	8,100	5,605	5,015	4,743	4,000	3,071
Blackgum	144,514	53,501	18,847	6,459	2,486	1,266	561	340
Aspen	39,553	18,291	13,647	8,903	4,426	1,975	473	215
Black cherry	428,017	116,380	61,201	41,854	29,930	21,806	14,026	8,590
Chestnut oak	45,367	42,459	49,609	48,281	37,704	22,377	12,256	6,703
Northern red oak	94,615	36,429	29,553	29,006	25,184	22,047	14,960	10,543
Select white oaks	34,858	26,696	29,665	26,643	21,186	14,756	9,020	4,285
Other oaks	43,679	26,206	16,643	15,293	14,672	10,913	8,123	5,013
Black locust	37,845	12,568	11,736	7,727	4,964	2,325	1,591	784
Basswood	7,482	2,845	5,582	5,988	4,387	3,289	2,203	937
Other commercial hardwoods	260,742	78,299	36,439	25,344	17,101	9,807	4,999	2,191
Noncommercial hardwoods	883,283	227,609	75,994	23,109	7,898	2,666	1,142	501
Total hardwoods	3,922,129	1,404,820	771,733	527,579	352,235	222,716	134,907	74,582
All species	4,136,307	1,543,222	863,913	591,829	391,553	247,174	149,501	81,553
SE	2.2	2.2	1.6	1.5	1.4	1.4	1.6	2.0

Table 11.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	1,445	991	1,329	140	66,995	171,725	9.6
Virginia pine	13	0	16	0	16,843	37,810	21.7
Other yellow pines	118	58	16	0	25,885	37,245	15.0
Eastern hemlock	2,437	1,253	1,652	79	127,235	304,455	6.7
Other softwoods	32	9	14	0	14,419	52,721	17.8
Total softwoods	4,046	2,312	3,028	219	251,376	603,957	5.0
Red maple	6,219	2,924	3,341	397	500,281	1,700,305	2.9
Sugar maple	3,331	1,640	1,912	337	196,768	554,780	4.3
Yellow birch	310	53	91	20	32,948	78,668	9.2
Sweet birch	741	270	229	15	123,150	448,032	5.7
Hickory	685	435	275	39	56,132	158,780	6.4
Beech	2,041	1,592	1,714	172	99,342	487,747	5.6
White ash	1,824	1,239	1,147	166	86,276	276,470	6.3
Black walnut	214	95	103	5	11,752	21,968	16.2
Yellow-poplar	2,063	1,322	1,239	183	35,341	80,950	13.4
Blackgum	138	91	99	13	30,300	228,314	8.4
Aspen	36	12	0	0	29,688	87,532	13.8
Black cherry	4,439	2,490	2,461	256	187,053	731,450	5.1
Chestnut oak	2,955	1,419	1,281	45	182,631	270,457	5.2
Northern red oak	6,931	3,995	4,876	701	147,796	278,840	4.7
Select white oaks	2,508	1,378	1,646	281	111,367	172,921	5.8
Other oaks	2,949	1,577	1,894	223	77,300	147,184	6.7
Black locust	325	170	217	5	29,845	80,258	10.7
Basswood	455	269	256	40	23,405	33,732	12.2
Other commercial hardwoods	1,256	640	872	193	98,843	437,884	6.0
Noncommercial hardwoods	285	118	169	30	111,913	1,222,805	3.9
Total hardwoods	39,704	21,728	23,825	3,121	2,172,130	7,499,079	1.5
All species	43,750	24,040	26,852	3,340	2,423,506	8,103,035	1.4
SE	2.4	2.7	2.9	5.3	1.0	1.4	

Table 12.--Number of all live trees on timberland by diameter class, tree class, and species group, Pennsylvania, 1989

(In thousands of trees)

Diameter class	Growing stock		Cull		All classes	SE
	Softwoods	Hardwoods	Softwoods	Hardwoods		
Seedlings	565,210	37,344,598	-	11,172,721	49,082,529	2.3
1.0 - 2.9	214,178	3,038,846	-	883,283	4,136,307	2.2
3.0 - 4.9	138,403	1,177,211	-	227,609	1,543,222	2.2
Total saplings	352,580	4,216,056	-	1,110,892	5,679,529	1.9
5.0 - 6.9	89,244	665,963	2,936	105,769	863,913	1.6
7.0 - 8.9	63,452	488,766	798	38,813	591,829	1.5
9.0 - 10.9	-	337,044	-	15,191	352,235	1.5
Total poletimber	152,696	1,491,774	3,734	159,774	1,807,978	1.2
9.0 - 10.9	36,478	-	2,840	-	39,318	5.7
11.0 - 12.9	23,581	208,394	877	14,321	247,174	1.4
13.0 - 14.9	14,329	127,743	265	7,164	149,501	1.6
Total small sawtimber	74,388	336,137	3,982	21,485	435,992	1.4
15.0 - 16.9	6,735	70,688	236	3,893	81,553	2.0
17.0 - 18.9	3,914	37,477	132	2,227	43,750	2.4
19.0 - 20.9	2,197	20,329	115	1,399	24,040	2.7
21.0 - 28.9	2,851	21,336	177	2,488	26,852	2.9
29.0 and larger	190	2,447	29	675	3,340	5.3
Total large sawtimber	15,886	152,278	690	10,682	179,536	1.7
All classes	1,160,761	43,540,843	8,407	12,475,554	57,185,565	2.0
SE	6.2	2.2	9.9	3.9	2.0	

Table 13.--Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class, Pennsylvania, 1989

(In thousands of trees)

Species	Tree class								All classes	SE
	Preferred	Acceptable	All growing stock	Rough cull	Rotten cull	All live	Salvable dead	Nonsalvable dead		
White and red pine	1,235	63,676	64,911	1,776	308	66,995	1,760	7,069	75,824	10.1
Virginia pine	0	16,340	16,340	503	0	16,843	573	1,859	19,275	17.7
Other yellow pines	64	24,964	25,028	734	122	25,885	1,132	5,812	32,829	14.1
Eastern hemlock	2,777	120,093	122,869	3,619	747	127,235	2,433	3,932	133,600	5.4
Other softwoods	250	13,571	13,822	597	0	14,419	437	271	15,127	19.0
Total softwoods	4,326	238,644	242,970	7,229	1,177	251,376	6,337	18,943	276,655	4.5
Red maple	736	478,642	479,377	12,675	8,229	500,281	6,504	21,588	528,373	2.4
Sugar maple	554	189,513	190,068	3,881	2,818	196,768	2,889	7,921	207,578	4.0
Yellow birch	5	31,401	31,406	966	575	32,948	1,194	5,090	39,232	7.9
Sweet birch	63	119,874	119,937	2,056	1,157	123,150	3,137	9,455	135,741	5.1
Hickory	257	54,899	55,156	517	459	56,132	1,769	2,185	60,085	6.5
Beech	94	94,032	94,126	1,944	3,272	99,342	1,419	5,269	106,030	5.1
White ash	1,323	81,306	82,629	2,322	1,325	86,276	3,497	2,757	92,530	4.9
Black walnut	49	11,126	11,174	345	232	11,752	311	314	12,377	14.1
Yellow-poplar	1,817	32,685	34,502	178	661	35,341	309	452	36,102	8.0
Blackgum	21	28,469	28,490	1,060	750	30,300	0	539	30,839	7.9
Aspen	0	29,230	29,230	335	124	29,688	1,551	5,133	36,372	11.3
Black cherry	1,970	174,276	176,246	8,473	2,334	187,053	3,695	14,497	205,245	3.9
Chestnut oak	176	177,266	177,442	3,727	1,462	182,631	6,525	43,912	233,067	4.1
Northern red oak	3,649	141,520	145,169	1,668	959	147,796	3,933	17,943	169,672	3.8
Select white oaks	920	108,270	109,190	1,364	813	111,367	4,644	18,794	134,806	4.8
Other oaks	1,212	74,178	75,391	871	1,038	77,300	3,637	13,293	94,230	5.0
Black locust	0	23,708	23,708	3,216	2,921	29,845	2,222	12,975	45,042	9.1
Basswood	393	22,229	22,622	485	298	23,405	589	1,319	25,312	10.0
Other commercial hardwoods	297	94,029	94,326	3,301	1,216	98,843	4,538	14,845	118,226	5.2
Noncommercial hardwoods	-	-	-	104,369	7,543	111,913	5,362	21,731	139,006	4.5
Total hardwoods	13,537	1,966,652	1,980,189	153,754	38,187	2,172,130	57,726	220,011	2,449,867	1.0
All species	17,863	2,205,296	2,223,159	160,983	39,364	2,423,506	64,062	238,953	2,726,522	1.0
SE	5.2	1.1	1.1	3.5	5.4	1.0	3.9	2.6	1.0	

Table 14.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	71,945	32,785	22,299	16,187	10,159	6,735	3,918	1,945
Virginia pine	10,137	10,829	6,281	4,662	3,244	1,554	502	65
Other yellow pines	2,520	8,841	9,237	7,536	4,197	2,174	1,256	436
Eastern hemlock	107,819	69,401	44,204	31,259	17,271	12,494	8,183	4,233
Other softwoods	21,756	16,546	7,223	3,807	1,606	624	470	55
Total softwoods	214,178	138,403	89,244	63,452	36,478	23,581	14,329	6,735
Red maple	817,032	382,992	196,248	121,967	73,903	40,207	24,183	11,417
Sugar maple	243,516	114,496	61,264	51,200	33,203	19,629	12,041	6,210
Yellow birch	30,506	15,214	11,598	9,719	5,166	2,715	1,350	516
Sweet birch	242,518	82,364	46,767	36,063	20,855	9,350	4,218	1,572
Hickory	71,598	31,050	16,540	14,790	11,005	6,173	3,536	1,709
Beech	314,370	74,035	38,136	20,974	13,045	8,367	5,244	3,817
White ash	144,048	46,145	25,106	18,054	14,713	10,388	6,400	3,868
Black walnut	5,266	4,951	3,983	3,068	1,418	1,110	843	377
Yellow-poplar	33,318	12,291	7,704	5,364	4,955	4,697	4,000	3,021
Blackgum	144,514	53,501	17,776	6,116	2,318	1,157	540	309
Aspen	39,553	18,291	13,364	8,844	4,372	1,945	441	215
Black cherry	428,017	116,380	56,944	39,124	28,987	20,423	13,442	8,197
Chestnut oak	45,367	42,459	48,314	47,193	37,298	21,371	11,681	6,367
Northern red oak	94,615	36,429	28,785	28,479	25,094	21,501	14,744	10,398
Select white oaks	34,858	26,696	28,829	26,144	21,092	14,406	8,976	4,174
Other oaks	43,679	26,206	16,035	14,793	14,444	10,678	8,000	4,968
Black locust	37,845	12,568	9,463	6,266	4,064	1,699	1,179	553
Basswood	7,482	2,845	5,326	5,866	4,263	3,222	2,109	937
Other hardwoods	260,742	78,299	33,781	24,741	16,848	9,357	4,816	2,064
Total hardwoods	3,038,846	1,177,211	665,963	488,766	337,044	208,394	127,743	70,688
All species	3,253,023	1,315,613	755,207	552,218	373,522	231,975	142,071	77,424
SE	2.4	2.3	1.7	1.5	1.4	1.5	1.7	2.0

Table 14.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	1,338	951	1,258	121	64,911	169,641	9.6
Virginia pine	13	0	16	0	16,340	37,307	21.7
Other yellow pines	118	58	16	0	25,028	36,389	15.2
Eastern hemlock	2,424	1,178	1,553	69	122,869	300,089	6.8
Other softwoods	20	9	7	0	13,822	52,124	17.9
Total softwoods	3,914	2,197	2,851	190	242,970	595,550	5.0
Red maple	5,638	2,687	2,854	271	479,377	1,679,402	2.9
Sugar maple	3,137	1,507	1,652	225	190,068	548,080	4.3
Yellow birch	253	30	54	5	31,406	77,126	9.3
Sweet birch	661	223	213	15	119,937	444,819	5.7
Hickory	685	422	261	34	55,156	157,804	6.4
Beech	1,844	1,318	1,300	80	94,126	482,531	5.7
White ash	1,761	1,176	1,037	125	82,629	272,823	6.3
Black walnut	202	95	72	5	11,174	21,391	16.5
Yellow-poplar	2,049	1,309	1,233	171	34,502	80,111	13.6
Blackgum	99	79	90	6	28,490	226,504	8.5
Aspen	36	12	0	0	29,230	87,074	13.8
Black cherry	4,281	2,365	2,273	209	176,246	720,643	5.1
Chestnut oak	2,780	1,313	1,097	28	177,442	265,268	5.3
Northern red oak	6,806	3,974	4,723	665	145,169	276,213	4.7
Select white oaks	2,481	1,326	1,545	218	109,190	170,744	5.8
Other oaks	2,901	1,554	1,824	193	75,391	145,275	6.8
Black locust	244	97	144	0	23,708	74,121	11.3
Basswood	429	237	205	28	22,622	32,949	12.4
Other hardwoods	1,190	606	756	166	94,326	433,367	6.0
Total hardwoods	37,477	20,329	21,336	2,447	1,980,189	6,196,245	1.5
All species	41,391	22,526	24,187	2,637	2,223,159	6,791,795	1.5
SE	2.4	2.8	3.0	5.9	1.1	1.5	

Table 15.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Pennsylvania, 1989

(In thousands of trees)

Species	Intact top				Broken top				All trees	SE
	Diameter group (inches at breast height)				Diameter group (inches at breast height)					
	5.0-10.9	11.0-14.9	15+	Total	5.0-10.9	11.0-14.9	15+	Total		
White and red pine	3,707	404	175	4,287	3,822	409	137	4,368	8,655	15.7
Virginia pine	1,122	56	0	1,177	981	49	0	1,031	2,208	25.2
Other yellow pines	2,823	317	14	3,154	3,038	331	34	3,403	6,557	19.5
Eastern hemlock	1,717	182	194	2,094	2,512	740	487	3,740	5,833	11.6
Other softwoods	412	0	0	412	296	0	0	296	708	35.8
Total softwoods	9,782	959	383	11,124	10,649	1,529	659	12,837	23,962	8.7
Red maple	9,297	432	67	9,795	14,995	1,644	659	17,299	27,095	6.3
Sugar maple	3,202	375	186	3,763	4,871	1,047	399	6,316	10,079	9.4
Yellow birch	1,319	168	41	1,528	4,157	404	49	4,610	6,139	10.2
Sweet birch	3,095	336	130	3,562	7,472	764	171	8,407	11,969	9.5
Hickory	1,218	285	118	1,621	1,162	430	301	1,893	3,514	13.9
Beech	1,130	257	135	1,522	3,208	1,086	739	5,033	6,556	11.8
White ash	2,622	311	158	3,091	1,962	336	92	2,390	5,482	13.0
Black walnut	233	35	0	268	230	35	18	284	552	40.8
Yellow-poplar	21	48	12	81	301	202	12	515	596	26.7
Blackgum	219	0	0	219	277	28	15	320	539	41.0
Aspen	2,075	188	15	2,278	4,206	154	0	4,360	6,639	13.7
Black cherry	7,496	572	229	8,296	8,086	731	428	9,246	17,542	7.7
Chestnut oak	16,316	3,656	2,061	22,033	24,212	2,372	946	27,530	49,563	6.8
Northern red oak	10,958	2,595	1,860	15,414	4,518	811	472	5,800	21,214	7.8
Select white oaks	8,790	1,130	522	10,441	11,115	747	241	12,103	22,545	7.8
Other oaks	8,106	2,126	1,035	11,267	3,732	763	453	4,948	16,215	9.2
Black locust	7,448	643	162	8,253	6,105	391	166	6,663	14,916	11.5
Basswood	563	42	0	605	977	162	90	1,230	1,835	19.1
Other commercial hardwoods	5,791	647	212	6,650	10,559	867	348	11,775	18,425	8.3
Noncommercial hardwoods	10,565	376	67	11,008	14,066	526	365	14,957	25,965	7.0
Total hardwoods	100,465	14,222	7,011	121,698	126,213	13,501	5,966	145,680	267,378	2.4
All species	110,247	15,181	7,395	132,823	136,863	15,030	6,625	158,517	291,340	2.3
SE	3.6	5.2	7.3	3.3	3.0	4.9	5.3	2.7	2.3	

Table 16.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Common juniper	0	0	2	0	2	70.8
Eastern redcedar	9	26	13	0	47	36.0
Larch	1	3	9	0	13	55.4
Spruce species	9	13	1	0	24	23.7
Jack pine	0	4	0	0	4	100.0
Table Mountain pine	0	1	0	0	1	100.0
Red pine	2	4	5	0	11	33.1
Pitch pine	1	3	3	0	7	30.0
Eastern white pine	179	104	34	0	317	10.4
Scotch pine	1	3	1	0	5	38.5
Virginia pine	30	11	10	0	51	43.0
Eastern hemlock	320	112	5	0	437	11.2
Maple species	2	0	3	0	5	68.0
Boxelder	61	7	8	0	76	30.8
Striped maple	920	325	171	0	1,416	9.2
Red maple	3,117	2,337	1,789	0	7,243	4.4
Silver maple	25	15	8	0	49	37.0
Sugar maple	1,546	572	221	0	2,340	9.2
Mountain maple	1	7	0	0	8	59.7
Ailanthus species	15	42	19	0	76	31.0
Alder species	161	89	8	0	258	26.0
Hercules club	29	16	43	0	88	20.1
Serviceberry	723	424	240	0	1,387	8.0
Chokeberry species	44	15	12	0	71	50.1
Azalea species	118	87	166	0	371	28.1
Common pawpaw	35	0	0	0	35	54.2
Barberry	236	26	31	0	293	23.6
Yellow birch	143	45	53	0	241	19.5
Sweet birch	1,626	942	824	0	3,391	8.3
River birch	1	5	1	0	7	72.4
Paper birch	11	3	8	0	21	43.9
Gray birch	82	27	79	0	189	36.5
American hornbeam	406	256	125	0	787	12.7
Hickory species	323	184	71	0	578	9.3
Bitternut hickory	20	3	4	0	27	31.2
Pignut hickory	12	8	1	0	21	27.0
Shagbark hickory	7	3	4	0	14	30.4
Mockernut hickory	12	9	3	0	24	49.0
American chestnut	78	47	98	0	223	21.9
New Jersey tea	0	0	1	0	1	100.0
Hackberry	14	16	18	0	48	37.0
Eastern redbud	35	16	8	0	59	37.1
Sweetfern	101	89	418	0	608	37.1
Flowering dogwood	579	193	327	0	1,099	12.0
Alternate-leaved dogwood	35	37	22	0	93	40.8
Silky dogwood	77	40	9	0	126	28.4
Round-leaved dogwood	12	0	4	0	16	59.2
Panicled dogwood	463	549	966	1	1,980	15.6
Red-osier dogwood	271	74	246	0	590	25.6
Hawthorn species	818	544	654	0	2,016	6.7
American hazelnut	161	30	8	0	199	28.7
Beaked hazelnut	118	34	72	0	225	36.5
Common persimmon	6	0	0	0	6	84.9
American beech	3,016	913	285	0	4,214	5.7
Russian olive	39	16	57	0	111	25.5
White ash	2,028	1,163	807	0	3,999	6.1
Green ash	36	19	39	0	95	38.6
Huckleberry	1,598	2,600	790	0	4,988	11.4
Honeylocust	0	0	0	0	0	100.0
Witch-hazel	1,758	991	506	0	3,256	5.8
Large-leaved holly	5	26	6	0	37	54.9

Table 16.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Winterberry holly	0	53	0	0	53	91.8
Butternut	5	1	3	0	9	56.2
Black walnut	13	19	13	0	45	21.3
Sheep laurel	392	889	616	0	1,897	15.8
Mountain laurel	3,321	5,211	874	0	9,407	6.7
Common spicebush	2,142	657	212	0	3,011	7.2
Sweetgum	1	0	1	0	2	70.8
Yellow-poplar	208	48	116	0	372	17.0
Bush honeysuckle	185	249	280	0	714	18.4
Osage-orange	1	0	0	0	1	100.0
Cucumbertree	76	21	8	0	105	20.6
Apple species	35	29	147	0	211	20.8
Mulberry species	0	1	0	0	1	100.0
White mulberry	0	0	1	0	1	100.0
Red mulberry	0	1	0	0	1	100.0
Mountain holly	23	3	43	0	69	61.5
Black tupelo	331	313	114	0	759	8.8
Eastern hophornbeam	450	185	125	0	760	9.8
Sourwood	1	0	0	0	1	100.0
Paulownia	0	0	2	0	2	100.0
Ninebark	15	0	0	0	15	66.4
American sycamore	3	1	1	0	4	62.9
Balsam poplar	1	0	0	0	1	100.0
Eastern cottonwood	5	20	5	0	30	42.4
Bigtooth aspen	47	56	77	0	179	16.5
Quaking aspen	31	92	180	0	304	18.3
Cherry species	49	9	11	0	69	26.7
Pin cherry	51	9	79	0	139	28.4
Black cherry	5,655	2,640	2,289	0	10,584	5.0
Chokecherry	520	175	71	0	766	16.8
White oak	445	415	124	0	985	10.4
Swamp white oak	12	0	0	0	12	80.7
Scarlet oak	57	75	60	0	192	20.5
Scrub, bear oak	107	215	665	0	986	26.8
Shingle oak	1	10	13	0	25	43.1
Pin oak	0	0	1	0	1	60.2
Chestnut oak	484	534	354	0	1,371	9.4
Northern red oak	706	450	351	0	1,507	6.5
Black oak	253	209	106	0	568	17.1
Buckthorn species	14	49	10	0	74	52.1
Rhododendron species	143	160	1	0	304	29.6
Winged sumac	0	0	1	0	1	100.0
Smooth sumac	7	7	42	0	56	63.1
Staghorn sumac	13	29	87	0	130	21.1
Poison sumac	0	0	1	0	1	100.0
Currant species	51	17	5	0	73	22.6
Black locust	70	32	99	0	201	18.4
Rose species	1,043	393	630	0	2,067	10.9
Rubus species	9,567	6,196	8,152	19	23,934	4.7
Willow species	59	49	18	0	126	32.3
Black willow	8	20	56	0	84	36.8
American elderberry	139	44	57	0	240	18.4
Red-berried alder	19	3	0	0	21	37.5
Sassafras	860	1,060	707	0	2,627	8.6
Spirea species	223	114	780	0	1,118	26.0
Sweetleaf	11	125	0	0	136	59.1
American basswood	112	14	11	0	136	50.7
Elm species	5	0	3	0	8	41.4
Winged elm	2	0	0	0	2	100.0
American elm	95	62	47	0	203	14.0
Slippery elm	155	92	188	0	436	19.5
American bladdernut	41	0	0	0	41	72.1
Blueberry	9,037	14,806	5,965	0	29,807	5.4

Table 16.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Viburnum species	386	198	80	0	664	18.8
Maple-leaved viburnum	1,580	673	280	0	2,532	12.6
Hobblebush viburnum	55	1	32	0	88	47.4
Wild raisin	36	100	31	0	167	61.1
Arrowwood	663	681	339	0	1,684	16.1
Nannyberry	3	232	73	0	308	64.4
Blackhaw	250	55	27	0	333	22.5
Common prickly ash	4	0	0	0	4	82.4
Unknown deciduous shrub	554	532	429	0	1,516	22.9
Unknown evergreen shrub	4	0	6	0	10	48.6
Unknown tree	151	57	126	0	334	22.2
All species	62,464	51,520	34,552	20	148,555	1.9
SE	3.2	4.0	6.2	84.4	1.9	

Table 17.--Net dry weight of all live trees on timberland by species and diameter class, Pennsylvania, 1989

(In thousands of tons)

Species	Diameter class (inches at breast height)										All classes	SE
	1.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0+		
White and red pine	1,039	1,466	2,065	2,335	2,253	1,885	1,315	1,251	1,120	2,863	17,593	8.2
Virginia pine	353	477	668	814	600	285	51	15	0	26	3,288	17.4
Other yellow pines	270	685	1,060	1,081	841	686	319	117	71	35	5,166	12.0
Eastern hemlock	2,292	2,977	4,121	4,158	4,410	4,069	2,911	2,145	1,409	3,054	31,545	5.2
Other softwoods	571	522	516	372	212	222	39	28	10	23	2,515	17.3
Total softwoods	4,526	6,127	8,432	8,760	8,316	7,146	4,634	3,557	2,610	6,000	60,108	4.0
Red maple	17,575	17,606	21,448	22,012	19,586	16,793	10,743	7,315	4,380	9,241	146,699	2.3
Sugar maple	7,188	8,463	13,579	14,414	12,916	11,247	7,578	4,973	3,022	6,567	89,947	3.9
Yellow birch	829	1,141	1,898	1,673	1,500	1,044	523	376	79	288	9,350	7.7
Sweet birch	3,928	4,572	7,200	7,211	5,549	3,665	1,948	1,111	526	731	36,443	4.7
Hickory	1,437	1,696	3,263	4,366	3,939	3,382	2,336	1,211	1,004	1,256	23,891	5.9
Beech	5,433	4,992	5,288	5,495	5,424	4,753	4,517	2,822	2,650	4,613	45,987	4.7
White ash	2,973	2,982	4,136	5,444	5,785	4,859	3,943	2,288	1,948	3,150	37,510	4.4
Black walnut	212	362	534	433	570	601	348	252	146	245	3,704	12.2
Yellow-poplar	404	557	790	1,260	1,908	2,365	2,552	2,290	1,893	3,829	17,849	7.4
Blackgum	2,693	1,689	1,229	817	656	415	337	163	146	303	8,449	6.2
Aspen	708	1,170	1,506	1,341	959	338	211	48	24	0	6,305	10.8
Black cherry	6,390	5,811	8,012	9,961	11,263	10,505	8,876	6,190	4,429	7,957	79,396	3.4
Chestnut oak	1,847	4,827	9,652	13,268	12,493	10,007	7,698	4,541	2,847	3,878	71,057	3.9
Northern red oak	1,629	2,933	6,056	9,538	13,459	13,759	13,739	12,405	9,505	23,900	106,922	3.5
Select white oaks	887	2,320	4,616	6,780	7,613	6,990	4,795	3,839	2,790	7,677	48,307	4.1
Other oaks	1,202	1,573	2,965	5,013	5,865	6,358	5,425	4,333	2,976	7,155	42,865	4.7
Black locust	475	887	1,191	1,436	1,049	1,078	744	441	298	556	8,155	9.9
Basswood	96	459	1,092	1,369	1,644	1,637	983	629	492	856	9,258	8.8
Other commercial hardwoods	3,830	3,109	4,530	5,271	4,781	3,593	2,154	1,670	1,095	3,486	33,520	5.1
Noncommercial hardwoods	10,701	6,264	4,135	2,495	1,281	809	443	358	165	652	27,304	3.9
Total hardwoods	70,437	73,413	103,123	119,599	118,242	104,199	79,895	57,254	40,413	86,343	852,919	1.0
All species	74,963	79,540	111,555	128,359	126,558	111,345	84,529	60,811	43,023	92,343	913,026	.9
SE	1.9	1.6	1.5	1.4	1.5	1.6	2.0	2.4	2.8	3.0	.9	

Table 18.--Net dry weight[a] of all trees on timberland by class of material and species group, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	26,822	283,275	310,097	1.4
Upper stem	3,270	65,427	68,697	1.3
Total sawtimber trees	30,092	348,702	378,794	1.3
Poletimber trees	9,625	195,225	204,851	1.2
All growing stock	39,717	543,927	583,644	1.0
Rough cull trees[b]	1,295	26,115	27,410	3.1
Rotten cull trees[b]	151	7,914	8,065	4.4
Salvable dead trees[c]	857	11,837	12,694	4.9
Saplings[c]	4,526	70,437	74,963	1.9
Tops - growing stock	13,949	192,162	206,111	1.0
Tops - rough and rotten	469	12,363	12,832	2.6
All nongrowing stock	21,247	320,829	342,076	.9
All classes	60,965	864,756	925,721	.9
SE	4.0	1.0	.9	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 19.--Net volume of all trees on timberland by class of timber and species group, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	693.2	863.8	5,016.3	6,127.6	12,701.0	1.4
Upper stem	87.4	105.6	1,191.7	1,439.2	2,823.9	1.3
Total sawtimber trees	780.6	969.4	6,208.0	7,566.8	15,524.8	1.4
Poletimber trees	268.4	313.3	4,199.5	4,478.5	9,259.7	1.3
Total growing-stock trees	1,049.0	1,282.7	10,407.5	12,045.3	24,784.5	1.1
Rough trees:						
Sawtimber size	11.7	19.2	186.8	150.8	368.5	4.3
Poletimber size	1.8	2.1	196.0	152.7	352.5	4.4
Total rough trees	13.5	21.3	382.8	303.5	721.1	3.3
Rotten trees:						
Sawtimber size	1.8	3.5	65.9	95.3	166.4	5.2
Poletimber size	.5	.2	15.3	14.7	30.7	8.4
Total rotten trees	2.3	3.8	81.1	109.9	197.1	4.7
Salvable dead[a] trees:						
Sawtimber size	8.6	12.1	41.3	99.1	161.1	7.6
Poletimber size	5.5	2.9	54.4	78.4	141.2	5.6
Total salvable dead trees	14.1	14.9	95.7	177.5	302.2	5.2
All classes	1,078.9	1,322.7	10,967.1	12,636.2	26,004.9	1.0
SE	7.3	5.4	1.8	1.5	1.0	

[a] Includes noncommercial species.

Net volume of trees on timberland by class of timber, Pennsylvania, 1989

(cubic feet)

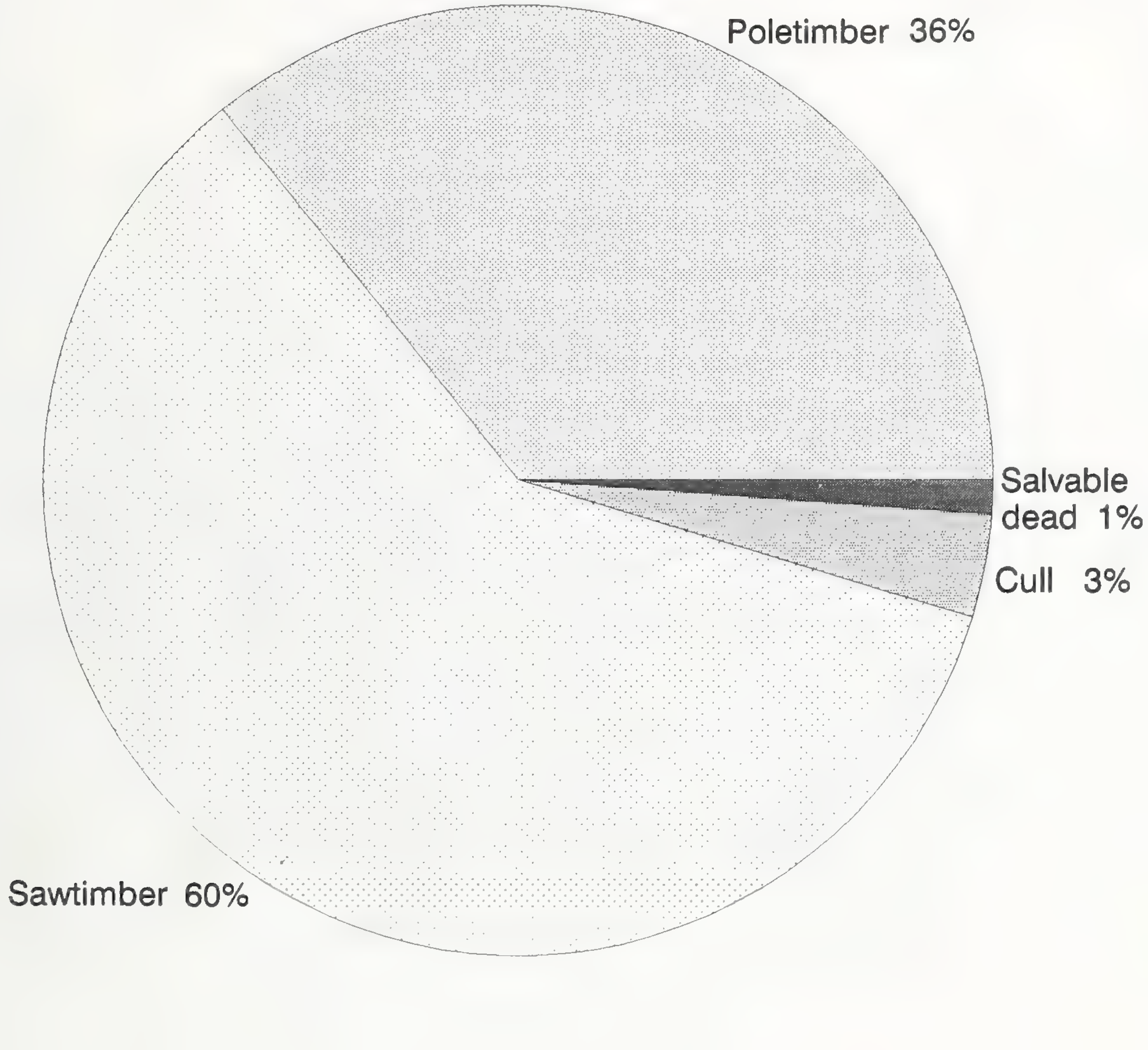


Table 20.--Net volume of all live, growing-stock, and sawtimber trees on timberland by species group and ownership class, Pennsylvania, 1989

(In millions of cubic feet)

Species group	Ownership class				All classes
	National Forest	Other public	Forest industry	Other private	
			All live		
			(In millions of cubic feet)		
Softwoods	67.3	376.9	83.8	1,844.5	2,372.5
Hardwoods	1,042.8	4,617.5	1,148.6	16,521.2	23,330.1
Total all live	1,110.1	4,994.4	1,232.4	18,365.8	25,702.7
			Growing stock		
			(In millions of cubic feet)		
Softwoods	66.3	369.9	82.1	1,813.4	2,331.7
Hardwoods	1,025.0	4,482.7	1,116.1	15,829.0	22,452.8
Total growing stock	1,091.3	4,852.6	1,198.3	17,642.3	24,784.5
			Sawtimber		
			(In millions of board feet)[a]		
Softwoods	210.2	1,150.0	232.8	5,606.7	7,199.7
Hardwoods	3,490.4	11,777.9	2,898.2	41,352.4	59,518.8
Total sawtimber	3,700.6	12,927.9	3,131.0	46,959.0	66,718.4

[a] For all board-foot volume tables, International 1/4-inch rule is used.

Table 21.--Net volume of growing-stock trees on timberland by forest-type group and stand-size class, Pennsylvania, 1989

(In millions of cubic feet)

Forest-type group	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
White/red pine	1,181.1	263.1	20.6	.0	1,464.8	9.1
Spruce/fir	19.6	29.1	6.1	.0	54.8	36.9
Loblolly/shortleaf	114.2	44.3	3.7	.0	162.1	22.6
Oak/pine	340.2	123.6	12.2	.0	476.0	15.1
Oak/hickory	7,600.7	3,090.2	329.0	.0	11,019.9	2.3
Elm/ash/red maple	582.6	261.9	43.2	.0	887.7	10.7
Northern hardwoods	7,673.8	2,384.8	295.6	1.2	10,355.5	2.6
Aspen/birch	111.0	220.3	32.5	.0	363.8	17.6
All groups	17,623.0	6,417.4	742.9	1.2	24,784.5	1.1
SE	1.9	3.2	7.1	62.5	1.1	

Table 22.--Net volume of growing-stock trees on timberland by species and forest-type group, Pennsylvania, 1989

(In millions of cubic feet)

Species	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
White and red pine	388.6	3.0	10.7	123.4	146.1	.0	1.0	85.3	4.7	762.7	9.1
Virginia pine	5.7	.0	66.5	17.1	13.7	.0	1.5	4.2	.0	108.8	18.1
Other yellow pines	47.5	1.4	40.7	26.6	44.4	.0	.5	14.4	2.1	177.6	12.5
Eastern hemlock	463.6	.3	.0	22.8	158.4	.0	6.5	548.7	1.7	1,202.1	5.6
Other softwoods	7.2	35.4	3.0	2.1	8.4	.0	1.1	16.1	7.3	80.7	20.5
Total softwoods	912.6	40.2	120.9	192.1	371.0	.0	10.6	668.7	15.7	2,331.7	4.5
Red maple	142.1	1.2	7.8	69.6	1,672.4	.0	506.1	2,001.2	47.5	4,447.8	2.6
Sugar maple	21.8	.0	.1	8.6	188.4	.0	20.1	1,951.1	5.4	2,195.5	4.3
Yellow birch	23.5	.0	.0	.3	18.2	.0	1.5	201.4	1.0	245.9	8.6
Sweet birch	49.8	1.7	.6	10.7	335.3	.0	12.4	535.6	6.0	952.0	5.1
Hickory	9.7	.0	.0	3.6	451.5	.0	15.3	129.6	1.9	611.6	6.1
Beech	37.2	.0	.0	1.3	165.1	.0	29.8	886.4	7.1	1,127.0	5.4
White ash	19.2	1.5	6.0	16.4	277.9	.0	42.6	742.0	4.6	1,110.2	5.0
Black walnut	2.0	.2	.6	.6	58.4	.0	6.3	32.5	.0	100.5	12.8
Yellow-poplar	18.8	.3	4.5	3.4	653.7	.0	4.5	131.1	.0	816.3	7.7
Blackgum	3.0	.9	.2	1.8	120.0	.0	.8	24.5	.0	151.3	7.6
Aspen	10.2	.0	.0	1.4	36.6	.0	17.3	80.0	69.8	215.4	11.4
Black cherry	51.5	4.4	1.4	12.6	413.8	.0	38.6	1,864.2	17.4	2,403.9	3.8
Chestnut oak	19.2	.0	5.3	28.8	1,525.9	.0	.3	52.7	4.0	1,636.3	4.1
Northern red oak	51.4	.0	3.7	35.3	2,115.8	.0	9.0	291.9	13.2	2,520.3	3.6
Select white oaks	34.7	.0	3.5	53.7	1,080.7	.0	20.8	83.7	3.4	1,280.5	4.3
Other oaks	16.4	1.2	5.5	17.3	1,083.0	.0	7.3	64.5	.3	1,195.4	5.0
Black locust	.9	1.5	.4	6.2	106.0	.0	4.4	52.2	.1	171.7	10.7
Basswood	5.0	.0	.0	1.3	45.3	.0	.2	268.1	.6	320.4	9.3
Other hardwoods	35.6	1.7	1.7	10.9	300.8	.0	140.1	294.1	165.7	950.7	5.7
Total hardwoods	552.2	14.6	41.2	283.9	10,648.9	.0	877.2	9,686.7	348.1	22,452.8	1.1
All species	1,464.8	54.8	162.1	476.0	11,019.9	.0	887.7	10,355.5	363.8	24,784.5	1.1
SE	9.1	36.9	22.6	15.1	2.3	.0	10.7	2.6	17.6	1.1	

Table 23.--Net volume of growing-stock trees on timberland by species and stand-size class, Pennsylvania, 1989

(In millions of cubic feet)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White and red pine	561.0	184.2	17.5	.0	762.7	9.1
Virginia pine	70.2	35.5	3.0	.0	108.8	18.1
Other yellow pines	84.7	84.5	8.4	.0	177.6	12.5
Eastern hemlock	1,010.7	177.7	13.7	.0	1,202.1	5.6
Other softwoods	25.1	48.4	7.2	.0	80.7	20.5
Total softwoods	1,751.6	530.3	49.8	.0	2,331.7	4.5
Red maple	3,085.2	1,228.5	134.1	.0	4,447.8	2.6
Sugar maple	1,673.4	462.3	59.3	.6	2,195.5	4.3
Yellow birch	192.8	50.6	2.5	.0	245.9	8.6
Sweet birch	628.4	302.3	21.3	.0	952.0	5.1
Hickory	440.0	153.6	18.0	.0	611.6	6.1
Beech	964.0	149.3	13.7	.0	1,127.0	5.4
White ash	824.4	247.3	38.5	.0	1,110.2	5.0
Black walnut	49.5	41.6	9.4	.0	100.5	12.8
Yellow-poplar	720.1	80.0	16.2	.0	816.3	7.7
Blackgum	90.0	51.5	9.8	.0	151.3	7.6
Aspen	68.5	122.5	24.3	.0	215.4	11.4
Black cherry	1,772.5	540.9	90.1	.4	2,403.9	3.8
Chestnut oak	911.8	671.9	52.6	.0	1,636.3	4.1
Northern red oak	1,855.0	605.1	60.2	.0	2,520.3	3.6
Select white oaks	823.7	412.3	44.5	.0	1,280.5	4.3
Other oaks	862.1	296.6	36.7	.0	1,195.4	5.0
Black locust	110.0	56.3	5.4	.0	171.7	10.7
Basswood	244.5	70.8	5.1	.0	320.4	9.3
Other hardwoods	555.5	343.7	51.3	.2	950.7	5.7
Total hardwoods	15,871.4	5,887.1	693.1	1.2	22,452.8	1.1
All species	17,623.0	6,417.4	742.9	1.2	24,784.5	1.1
SE	1.9	3.2	7.1	62.5	1.1	

Table 24.--Net volume of growing-stock trees on timberland by species and diameter class, Pennsylvania, 1978

(In millions of cubic feet)

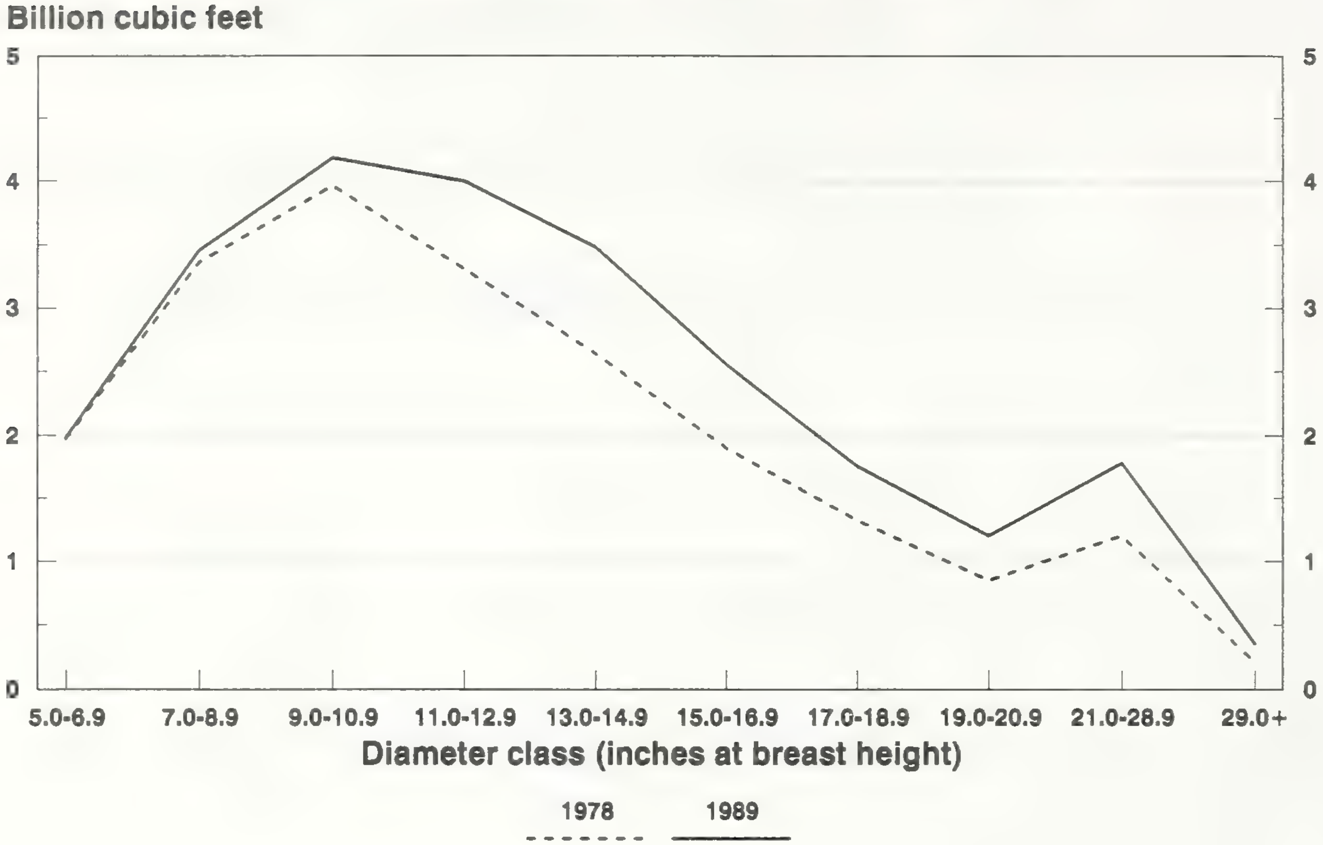
Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	56.8	85.2	98.5	66.8	52.7	36.5	45.2	18.3	65.2	6.8	532.0
Virginia pine	17.6	22.3	26.8	20.2	3.9	1.9	.0	.0	.0	.0	92.6
Other yellow pines	35.8	38.1	44.5	34.5	16.3	8.5	.9	1.6	.0	.0	180.1
Eastern hemlock	92.6	131.3	124.8	138.6	113.4	88.9	46.6	45.5	49.1	1.8	832.7
Other softwoods	8.9	10.8	8.4	6.6	.7	.0	.7	.0	.6	.0	36.8
Total softwoods	211.7	287.8	303.0	266.7	187.0	135.7	93.4	65.4	114.9	8.6	1,674.3
Red maple	416.5	648.9	693.1	540.0	383.5	214.8	145.8	73.4	121.0	11.0	3,247.9
Sugar maple	209.5	351.4	367.5	282.4	233.2	150.7	81.5	60.2	77.9	17.3	1,831.7
Yellow birch	34.9	54.9	57.7	39.3	22.3	9.2	2.2	1.1	2.0	.0	223.6
Sweet birch	130.3	178.8	167.2	87.1	55.9	30.7	18.4	12.5	10.6	.0	691.5
Hickory	40.8	99.3	116.3	94.8	73.1	47.9	28.4	18.1	22.9	2.3	543.9
Beech	85.6	123.8	142.2	133.8	130.8	96.1	65.9	38.4	74.3	21.1	912.0
White ash	77.9	122.7	146.4	151.8	106.0	90.6	64.2	36.7	35.6	10.5	842.4
Black walnut	6.7	8.2	10.7	11.0	6.4	6.7	3.2	2.1	1.9	1.6	58.7
Yellow-poplar	20.2	31.6	79.4	79.6	94.5	100.0	54.9	52.3	87.2	23.5	623.3
Blackgum	21.3	19.3	16.2	15.1	7.0	7.1	5.5	1.2	6.2	.0	98.9
Aspen	40.0	43.0	43.9	20.2	7.1	2.1	.0	.0	.0	.0	156.3
Black cherry	129.1	249.0	352.2	313.4	237.4	196.4	140.6	89.1	92.7	4.4	1,804.3
Chestnut oak	154.0	309.8	405.0	299.6	241.2	153.3	103.4	57.8	52.0	5.0	1,781.0
Northern red oak	103.8	240.1	334.3	356.2	338.3	291.1	222.6	167.0	251.1	54.6	2,359.1
Select white oaks	110.3	199.4	243.9	218.0	180.2	129.6	111.9	59.8	85.5	28.8	1,367.5
Other oaks	59.9	138.7	197.5	209.4	197.9	147.2	150.5	85.2	121.6	17.2	1,324.9
Black locust	15.6	41.6	35.9	23.1	15.1	7.3	6.5	2.7	5.5	.0	153.3
Basswood	21.5	42.1	57.6	54.8	43.4	27.5	10.2	7.6	9.2	.6	274.5
Other hardwoods	84.8	174.2	195.4	114.9	81.9	60.1	18.8	19.7	32.1	7.9	789.6
Total hardwoods	1,762.9	3,076.7	3,662.2	3,044.5	2,455.3	1,768.4	1,234.5	784.7	1,089.3	205.8	19,084.5
All species	1,974.7	3,364.5	3,965.2	3,311.2	2,642.3	1,904.1	1,327.9	850.1	1,204.3	214.5	20,758.8

Table 25.--Net volume of growing-stock trees on timberland by species and diameter class, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	62.8	101.6	117.5	113.6	93.6	61.4	53.5	48.6	94.0	16.1	762.7	9.1
Virginia pine	16.6	26.3	31.0	21.5	10.2	1.8	.5	.0	.7	.0	108.8	18.1
Other yellow pines	21.8	39.3	39.2	31.4	25.9	12.3	4.3	2.5	.9	.0	177.6	12.5
Eastern hemlock	107.7	163.7	166.3	192.0	177.9	125.1	95.6	57.0	107.9	9.0	1,202.1	5.6
Other softwoods	19.5	22.4	15.8	9.9	9.6	1.7	.8	.5	.4	.0	80.7	20.5
Total softwoods	228.3	353.4	369.8	368.4	317.2	202.4	154.6	108.5	203.9	25.1	2,331.7	4.5
Red maple	494.3	767.2	850.5	715.7	612.2	384.6	242.7	140.8	203.8	36.1	4,447.8	2.6
Sugar maple	180.1	362.0	400.5	361.0	310.8	211.9	136.9	82.1	122.5	27.7	2,195.5	4.3
Yellow birch	29.7	58.1	55.1	43.9	29.6	15.4	9.2	1.2	3.1	.5	245.9	8.6
Sweet birch	129.5	233.8	232.4	159.8	97.8	46.9	26.4	10.7	13.5	1.4	952.0	5.1
Hickory	42.1	99.5	130.0	115.5	89.3	59.0	28.6	23.9	19.7	4.0	611.6	6.1
Beech	102.0	137.3	162.4	159.7	144.4	138.9	89.2	76.3	105.6	11.2	1,127.0	5.4
White ash	70.5	121.3	176.5	190.5	169.1	137.4	80.8	69.1	77.7	17.2	1,110.2	5.0
Black walnut	9.5	16.5	13.9	16.1	17.3	10.6	7.2	4.7	4.2	.6	100.5	12.8
Yellow-poplar	22.0	37.5	64.1	98.4	120.5	125.2	109.0	87.2	119.5	33.0	816.3	7.7
Blackgum	37.7	34.2	24.6	19.9	11.7	8.8	3.8	3.4	6.5	.6	151.3	7.6
Aspen	45.2	59.0	54.1	35.8	11.7	7.2	1.6	.6	.0	.0	215.4	11.4
Black cherry	161.6	267.3	351.5	387.9	370.0	303.2	203.7	140.2	188.2	30.4	2,403.9	3.8
Chestnut oak	108.8	252.0	351.6	307.6	236.1	169.3	94.5	55.6	57.9	2.8	1,636.3	4.1
Northern red oak	81.6	178.1	280.1	365.9	358.3	337.6	284.6	207.0	340.0	87.3	2,520.3	3.6
Select white oaks	73.3	151.2	220.7	223.8	196.3	127.2	94.2	64.1	103.5	26.2	1,280.5	4.3
Other oaks	41.7	91.9	160.9	182.0	191.8	161.8	120.1	81.3	136.0	27.9	1,195.4	5.0
Black locust	21.6	30.6	36.1	24.3	23.0	14.2	8.5	4.3	9.1	.0	171.7	10.7
Basswood	15.4	43.5	54.8	63.5	58.8	34.0	19.4	13.2	14.6	3.3	320.4	9.3
Other hardwoods	91.3	163.3	195.8	164.4	118.0	65.0	47.2	28.7	52.3	24.7	950.7	5.7
Total hardwoods	1,757.9	3,104.5	3,815.6	3,635.7	3,166.5	2,358.0	1,607.7	1,094.4	1,577.8	334.7	22,452.8	1.1
All species	1,986.2	3,457.8	4,185.4	4,004.0	3,483.8	2,560.4	1,762.3	1,203.0	1,781.7	359.8	24,784.5	1.1
SE	1.9	1.7	1.5	1.6	1.8	2.2	2.5	2.9	3.2	6.5	1.1	

Net volume of growing-stock trees on timberland, Pennsylvania, 1978 and 1989



Net volume of growing-stock trees on timberland by species, Pennsylvania, 1978 and 1989

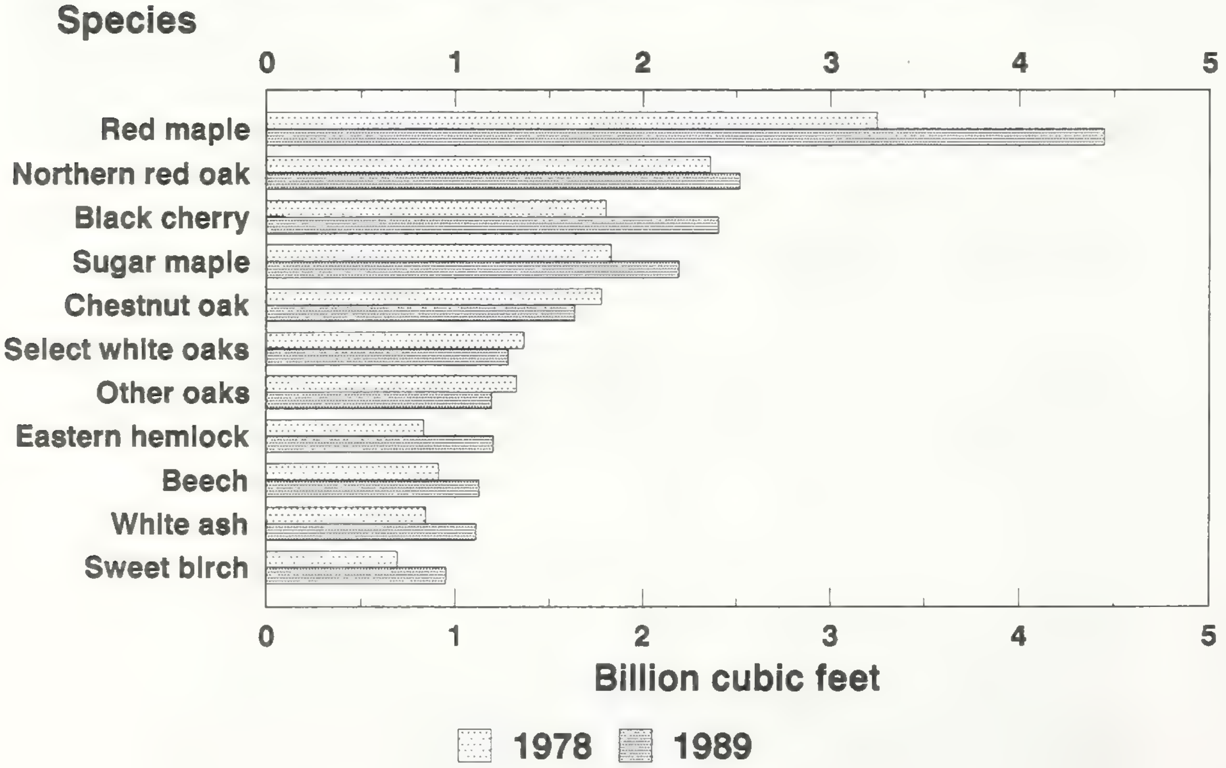


Table 26.--Net volume of growing stock in the sawlog portion of sawtimber trees on timberland by species and diameter class, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	98.8	98.8	83.7	55.9	49.3	45.2	87.9	15.1	534.7	9.0
Virginia pine	26.1	18.7	9.1	1.6	.5	.0	.7	.0	56.7	19.9
Other yellow pines	33.0	27.3	23.1	11.2	3.9	2.4	.9	.0	101.8	13.8
Eastern hemlock	139.9	167.0	159.1	113.9	88.1	53.0	100.9	8.4	830.2	6.1
Other softwoods	13.3	8.6	8.6	1.5	.7	.4	.4	.0	33.6	23.8
Total softwoods	311.1	320.5	283.6	184.2	142.7	100.9	190.7	23.5	1,557.0	4.8
Red maple	-	526.8	495.9	323.0	206.3	119.7	173.2	30.7	1,875.5	3.6
Sugar maple	-	265.7	251.7	178.0	116.4	69.8	104.1	23.5	1,009.2	5.4
Yellow birch	-	32.3	24.0	13.0	7.8	1.1	2.7	.4	81.2	11.3
Sweet birch	-	117.6	79.2	39.4	22.4	9.1	11.4	1.2	280.3	6.4
Hickory	-	85.0	72.3	49.5	24.3	20.3	16.8	3.4	271.6	7.2
Beech	-	117.6	117.0	116.7	75.8	64.9	89.8	9.5	591.1	6.7
White ash	-	140.2	137.0	115.4	68.7	58.7	66.0	14.6	600.7	5.8
Black walnut	-	11.8	14.0	8.9	6.1	4.0	3.6	.5	48.8	13.5
Yellow-poplar	-	72.4	97.6	105.2	92.6	74.1	101.6	28.0	571.5	8.2
Blackgum	-	14.7	9.5	7.4	3.2	2.9	5.5	.5	43.7	10.8
Aspen	-	26.4	9.5	6.0	1.4	.5	.0	.0	43.8	15.2
Black cherry	-	285.5	299.7	254.7	173.1	119.2	160.0	25.8	1,317.9	4.5
Chestnut oak	-	226.4	191.2	142.2	80.4	47.3	49.3	2.4	739.1	4.9
Northern red oak	-	269.3	290.2	283.6	241.9	175.9	289.0	74.2	1,624.1	4.0
Select white oaks	-	164.7	159.0	106.8	80.1	54.5	88.0	22.3	675.3	4.7
Other oaks	-	134.0	155.3	136.0	102.1	69.1	115.6	23.7	735.8	5.6
Black locust	-	17.9	18.6	11.9	7.2	3.7	7.7	.0	67.1	14.5
Basswood	-	46.7	47.7	28.5	16.5	11.2	12.4	2.8	165.9	9.7
Other hardwoods	-	121.0	95.5	54.6	40.1	24.4	44.5	21.0	401.2	7.2
Total hardwoods	-	2,675.8	2,564.9	1,980.7	1,366.5	930.3	1,341.1	284.5	11,143.9	1.5
All species	311.1	2,996.3	2,848.5	2,164.9	1,509.2	1,031.2	1,531.8	308.0	12,701.0	1.4
SE	6.8	1.6	1.8	2.2	2.5	2.9	3.2	6.5	1.4	

Table 27.--Net volume of sawtimber trees on timberland by species and diameter class, Pennsylvania, 1978

(In millions of board feet)

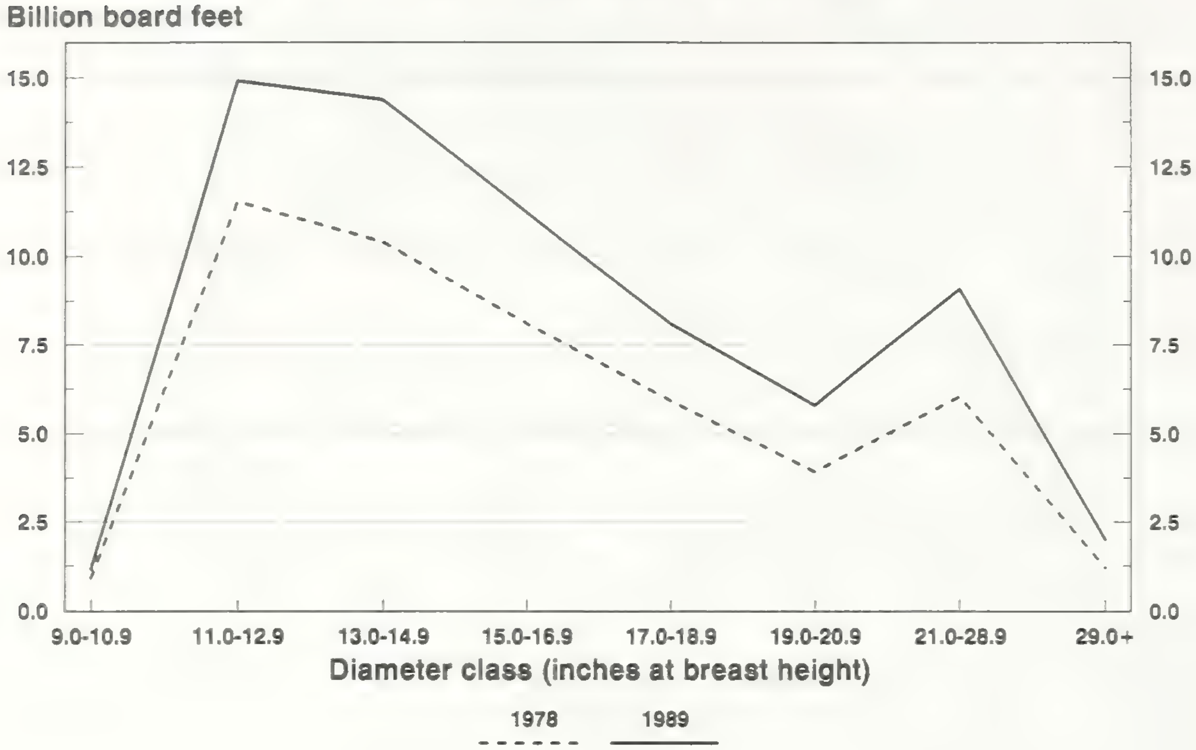
Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	322.2	258.4	225.2	166.3	213.8	89.1	331.7	36.1	1,642.9
Virginia pine	77.8	68.5	13.3	5.9	.0	.0	.0	.0	165.5
Other yellow pines	127.2	120.3	63.1	34.4	3.3	6.6	.0	.0	354.9
Eastern hemlock	369.7	503.7	459.7	381.1	208.2	212.6	232.2	10.4	2,377.6
Other softwoods	26.7	25.2	2.7	.0	3.4	.0	3.1	.0	61.2
Total softwoods	923.6	976.2	764.1	587.7	428.7	308.3	567.0	46.5	4,602.1
Red maple	-	1,886.1	1,507.8	906.8	644.9	338.8	606.4	57.7	5,948.6
Sugar maple	-	1,003.0	970.1	665.1	379.3	293.9	396.4	96.9	3,804.7
Yellow birch	-	141.7	86.0	39.1	8.5	5.9	12.5	.0	293.7
Sweet birch	-	281.5	192.5	113.4	71.2	50.1	44.4	.0	753.1
Hickory	-	333.7	292.2	208.2	137.0	83.7	116.6	13.8	1,185.1
Beech	-	479.2	537.7	429.6	304.2	183.7	361.8	121.4	2,417.6
White ash	-	573.3	445.0	396.3	301.8	158.1	174.3	58.4	2,107.1
Black walnut	-	41.8	26.6	29.2	13.8	9.1	10.3	8.4	139.3
Yellow-poplar	-	306.7	415.5	476.7	270.6	264.4	486.5	141.6	2,362.1
Blackgum	-	44.4	23.8	27.3	20.5	4.6	28.0	.0	148.6
Aspen	-	69.2	28.3	8.3	.0	.0	.0	.0	105.7
Black cherry	-	1,073.2	925.4	845.1	631.7	412.4	469.0	20.6	4,377.5
Chestnut oak	-	968.5	860.9	585.2	420.8	234.0	232.3	27.8	3,329.5
Northern red oak	-	1,190.3	1,295.6	1,208.7	972.3	787.3	1,271.1	309.2	7,034.5
Select white oaks	-	774.7	718.9	558.4	514.3	288.7	445.0	165.3	3,465.4
Other oaks	-	693.4	746.4	597.1	656.9	385.8	586.6	92.8	3,759.0
Black locust	-	61.5	47.4	26.3	23.5	10.6	21.0	.0	190.3
Basswood	-	189.8	171.7	117.1	44.1	34.4	46.8	3.1	607.1
Other hardwoods	-	440.2	344.6	275.0	89.3	91.8	171.7	43.4	1,456.1
Total hardwoods	-	10,552.3	9,636.3	7,513.0	5,504.7	3,637.2	5,480.6	1,160.5	43,484.8
All species	923.6	11,528.6	10,400.4	8,100.7	5,933.4	3,945.6	6,047.7	1,207.0	48,086.9

Table 28.--Net volume of sawtimber trees on timberland by species and diameter class, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	397.2	462.0	413.8	290.9	257.0	249.1	498.1	89.7	2,657.7	9.0
Virginia pine	98.6	79.4	38.2	7.3	2.4	.0	3.2	.0	229.0	20.4
Other yellow pines	122.1	118.4	105.2	53.9	19.5	11.3	4.3	.0	434.7	13.8
Eastern hemlock	502.2	705.0	724.7	540.7	429.2	267.2	525.0	46.3	3,740.2	6.2
Other softwoods	48.4	38.4	35.6	7.1	3.9	2.4	2.2	.0	138.0	23.8
Total softwoods	1,168.5	1,403.2	1,317.5	899.9	711.9	530.0	1,032.7	136.0	7,199.7	4.9
Red maple	-	2,621.8	2,512.5	1,672.0	1,103.2	673.0	1,033.2	189.4	9,805.2	3.6
Sugar maple	-	1,316.9	1,255.5	910.1	620.5	388.7	622.3	154.4	5,268.3	5.5
Yellow birch	-	170.0	119.1	66.1	41.8	5.2	15.5	2.5	420.2	11.3
Sweet birch	-	609.4	404.0	204.6	116.2	45.8	63.3	8.2	1,451.4	6.5
Hickory	-	436.0	384.7	263.6	136.2	116.3	102.6	25.0	1,464.3	7.2
Beech	-	605.5	610.5	627.3	425.7	382.4	546.5	65.9	3,263.8	6.8
White ash	-	724.8	702.5	598.7	368.7	329.2	376.8	91.5	3,192.2	5.9
Black walnut	-	59.7	71.4	45.5	31.5	21.9	18.1	3.3	251.3	13.4
Yellow-poplar	-	383.5	520.0	587.0	536.4	444.1	651.5	196.6	3,319.0	8.4
Blackgum	-	71.9	47.2	39.2	17.4	15.6	33.6	3.2	228.1	11.2
Aspen	-	141.6	52.9	34.0	7.7	3.0	.0	.0	239.3	15.3
Black cherry	-	1,450.1	1,565.2	1,369.4	972.7	706.9	999.2	191.6	7,255.2	4.6
Chestnut oak	-	1,107.2	914.7	690.0	403.2	247.1	270.0	15.8	3,648.0	4.9
Northern red oak	-	1,321.7	1,441.1	1,448.8	1,280.8	971.5	1,716.9	480.2	8,661.0	4.0
Select white oaks	-	859.9	837.8	572.0	440.2	309.5	535.5	148.1	3,703.0	4.7
Other oaks	-	652.2	770.0	692.5	531.1	383.4	672.7	157.7	3,859.4	5.6
Black locust	-	86.7	91.3	61.7	41.4	22.4	45.4	.0	348.8	15.5
Basswood	-	230.4	251.2	156.1	91.8	64.8	76.3	17.9	888.4	9.6
Other hardwoods	-	653.2	515.9	298.9	225.9	140.0	282.5	135.5	2,251.8	7.4
Total hardwoods	-	13,502.5	13,067.3	10,337.4	7,392.3	5,270.8	8,061.8	1,886.7	59,518.8	1.5
All species	1,168.5	14,905.7	14,384.8	11,237.3	8,104.1	5,800.7	9,094.5	2,022.7	66,718.4	1.5
SE	7.5	1.6	1.8	2.2	2.6	3.0	3.3	6.7	1.5	

Net volume of sawtimber trees on timberland, Pennsylvania, 1978 and 1989



Net volume of sawtimber trees on timberland by species, Pennsylvania, 1978 and 1989

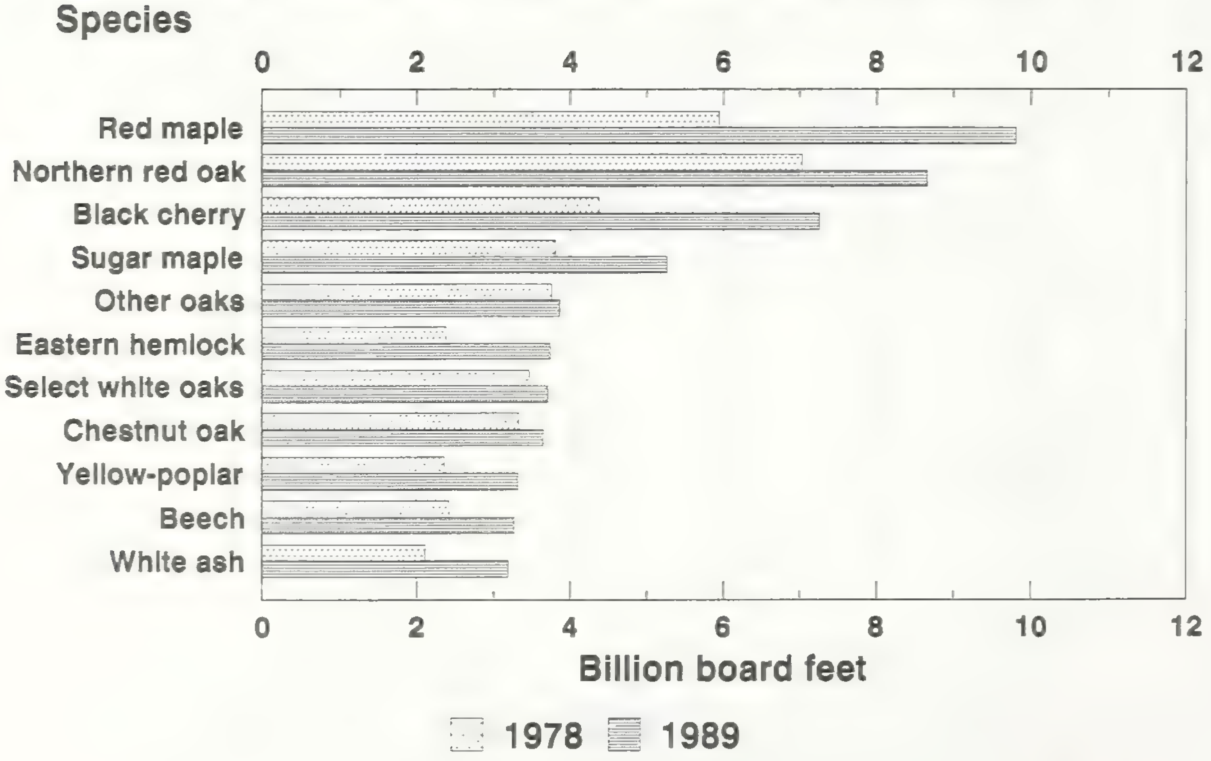


Table 29.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	162.3	195.7	552.0	474.7	1,384.7	208.8	368.4	1,317.0	763.5	2,657.7
Virginia pine	.0	.0	12.9	-	12.9	2.2	3.1	223.7	-	229.0
Other yellow pines	13.0	11.1	64.8	-	88.9	35.8	44.4	354.5	-	434.7
Eastern hemlock	1,808.3	-	-	-	1,808.3	3,740.2	-	-	-	3,740.2
Other softwoods	15.6	-	-	-	15.6	138.0	-	-	-	138.0
Total softwoods	1,999.3	206.8	629.6	474.7	3,310.4	4,125.1	415.9	1,895.2	763.5	7,199.7
Red maple	146.7	595.5	2,522.7	1,405.9	4,670.8	152.9	897.8	5,310.9	3,443.6	9,805.2
Sugar maple	471.2	481.2	1,031.0	712.6	2,695.9	566.0	702.7	2,358.0	1,641.6	5,268.3
Yellow birch	1.0	9.4	85.2	35.5	131.2	4.1	26.2	272.4	117.4	420.2
Sweet birch	30.4	56.7	234.9	116.0	438.0	40.0	97.5	729.4	584.5	1,451.4
Hickory	31.4	161.9	246.4	203.9	643.7	31.4	254.6	686.4	491.9	1,464.3
Beech	44.5	140.0	1,010.4	853.0	2,047.8	51.0	172.0	1,544.3	1,496.5	3,263.8
White ash	411.1	499.2	585.6	268.9	1,764.9	440.6	784.4	1,330.4	636.6	3,192.2
Black walnut	5.5	22.5	64.7	27.6	120.3	6.7	37.0	134.6	73.1	251.3
Yellow-poplar	511.7	502.7	718.6	682.5	2,415.5	515.9	623.8	1,106.6	1,072.7	3,319.0
Blackgum	3.4	21.5	62.3	21.9	109.1	3.4	37.9	130.3	56.5	228.1
Aspen	.0	4.5	16.9	23.4	44.8	.0	7.7	92.6	139.0	239.3
Black cherry	755.3	854.3	1,885.1	745.1	4,239.8	789.0	1,274.3	3,703.3	1,488.5	7,255.2
Chestnut oak	118.3	400.9	598.5	508.3	1,626.0	119.4	594.0	1,745.6	1,189.0	3,648.0
Northern red oak	1,135.9	1,646.9	2,057.1	1,058.3	5,898.2	1,168.3	2,025.9	3,586.3	1,880.6	8,661.0
Select white oaks	262.4	449.0	628.7	665.1	2,005.2	269.0	652.7	1,510.0	1,271.3	3,703.0
Other oaks	342.2	548.5	781.6	765.0	2,437.2	347.1	715.3	1,356.3	1,440.8	3,859.4
Black locust	1.1	19.0	105.7	45.2	170.9	1.1	26.1	224.9	96.7	348.8
Basswood	39.7	117.6	209.2	40.3	406.8	48.8	195.2	510.9	133.6	888.4
Other hardwoods	92.0	176.5	475.9	338.2	1,082.7	95.0	245.8	1,037.8	873.3	2,251.8
Total hardwoods	4,404.0	6,707.7	13,320.5	8,516.8	32,949.0	4,649.6	9,370.8	27,371.0	18,127.3	59,518.8
Percent of hardwood in each grade	13	20	41	26	100	8	16	46	30	100

Table 30.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	420.0	230.9	320.4	157.8	255.6	1,384.7	533.0	515.6	988.1	288.6	332.5	2,657.7
Virginia pine	.0	.0	8.3	-	4.6	12.9	4.2	5.7	192.6	-	26.5	229.0
Other yellow pines	24.6	19.1	30.3	-	15.0	88.9	67.5	78.2	255.7	-	33.3	434.7
Eastern hemlock	1,071.5	-	-	-	736.8	1,808.3	2,397.0	-	-	-	1,343.2	3,740.2
Other softwoods	9.2	-	-	-	6.5	15.6	101.1	-	-	-	36.9	138.0
Total softwoods	1,525.3	250.0	359.0	157.8	1,018.4	3,310.4	3,102.9	599.5	1,436.3	288.6	1,772.4	7,199.7
Red maple	214.8	823.3	1,488.1	1,135.7	1,008.9	4,670.8	214.8	1,210.4	4,233.9	2,761.3	1,384.8	9,805.2
Sugar maple	291.5	585.1	778.6	494.3	546.4	2,695.9	291.5	822.6	2,205.2	1,221.4	727.6	5,268.3
Yellow birch	.0	11.3	51.6	31.6	36.7	131.2	.0	23.7	213.0	102.1	81.4	420.2
Sweet birch	33.4	70.5	154.7	102.2	77.2	438.0	33.4	104.6	641.3	537.1	135.0	1,451.4
Hickory	63.8	169.5	204.4	130.6	75.3	643.7	63.8	276.3	715.8	305.2	103.2	1,464.3
Beech	44.4	214.5	543.9	704.2	540.8	2,047.8	44.4	265.6	984.2	1,291.0	678.7	3,263.8
White ash	613.2	472.8	363.5	124.8	190.6	1,764.9	613.2	814.5	1,218.6	293.7	252.1	3,192.2
Black walnut	6.9	30.7	33.3	20.8	28.4	120.3	6.9	52.3	97.5	55.6	39.0	251.3
Yellow-poplar	943.5	516.0	383.5	438.9	133.6	2,415.5	943.5	716.2	784.3	726.8	148.2	3,319.0
Blackgum	5.5	25.4	45.2	13.7	19.3	109.1	5.5	43.0	111.5	37.8	30.3	228.1
Aspen	.0	6.8	12.3	21.4	4.3	44.8	.0	11.4	92.4	126.1	9.4	239.3
Black cherry	1,146.0	1,249.0	947.2	307.6	589.9	4,239.8	1,146.0	1,907.0	2,747.7	690.7	763.7	7,255.2
Chestnut oak	160.9	514.2	544.5	250.6	155.9	1,626.0	160.9	750.0	1,851.4	665.8	219.9	3,648.0
Northern red oak	1,461.6	2,067.3	1,434.6	556.5	378.2	5,898.2	1,461.6	2,597.5	2,997.7	1,173.2	431.1	8,661.0
Select white oaks	355.6	629.1	554.2	301.8	164.5	2,005.2	355.6	899.9	1,606.9	641.9	198.6	3,703.0
Other oaks	555.4	732.0	617.9	393.1	138.9	2,437.2	555.4	980.1	1,341.6	816.5	165.7	3,859.4
Black locust	1.7	27.8	42.7	37.3	61.4	170.9	1.7	38.4	137.6	73.8	97.2	348.8
Basswood	76.1	163.5	108.3	20.7	38.1	406.8	76.1	277.2	375.9	90.1	69.1	888.4
Other hardwoods	136.1	213.2	294.6	259.4	179.5	1,082.7	136.1	307.5	877.6	702.1	228.5	2,251.8
Total hardwoods	6,110.4	8,522.2	8,603.2	5,345.3	4,367.9	32,949.0	6,110.4	12,098.4	23,234.2	12,312.2	5,763.4	59,518.8
All species	7,635.7	8,772.2	8,962.1	5,503.1	5,386.3	36,259.5	9,213.4	12,697.9	24,670.5	12,600.8	7,535.8	66,718.4

Table 31.--Average annual net change of growing-stock volume on timberland by species and component of change, Pennsylvania, 1977-88

(In thousands of cubic feet)

Species	Component of change								Net change
	Ingrowth	Accretion	Gross growth	Mortality	Cull decrement	Cull increment	Net growth	Removals	
White and red pine	6,206	19,295	25,501	-3,262	1,901	-705	23,435	-5,248	18,187
Virginia pine	518	1,771	2,289	-1,133	275	-12	1,419	-171	1,248
Other yellow pines	1,793	3,571	5,365	-3,134	561	-297	2,494	-2,683	-189
Eastern hemlock	5,290	29,786	35,076	-3,331	7,440	-1,281	37,903	-8,079	29,824
Other softwoods	2,350	2,201	4,550	-125	93	-69	4,449	-870	3,579
Total softwoods	16,158	56,623	72,781	-10,985	10,271	-2,365	69,701	-17,051	52,650
Red maple	30,684	107,668	138,352	-18,341	13,851	-5,689	128,173	-30,300	97,872
Sugar maple	9,481	49,467	58,947	-10,859	6,375	-2,265	52,199	-22,008	30,190
Yellow birch	1,672	4,220	5,892	-2,616	1,704	-403	4,576	-2,415	2,161
Sweet birch	8,236	22,440	30,676	-6,629	2,665	-708	26,004	-5,004	21,000
Hickory	2,809	13,735	16,544	-4,950	1,065	-157	12,502	-6,989	5,513
Beech	4,589	22,928	27,516	-4,766	7,893	-2,948	27,696	-10,168	17,527
White ash	7,689	30,859	38,547	-6,267	2,007	-722	33,565	-11,584	21,981
Black walnut	2,001	2,077	4,077	-360	93	-107	3,704	-449	3,255
Yellow-poplar	3,609	30,153	33,763	-2,658	512	-87	31,530	-15,960	15,570
Blackgum	1,951	2,574	4,525	-37	881	-283	5,087	-915	4,171
Aspen	4,097	6,577	10,675	-4,301	102	-89	6,387	-1,556	4,831
Black cherry	14,433	68,391	82,824	-9,915	8,768	-1,823	79,854	-29,866	49,987
Chestnut oak	4,161	32,963	37,124	-29,383	5,279	-676	12,344	-23,463	-11,119
Northern red oak	7,721	67,979	75,700	-18,614	3,317	-889	59,514	-46,690	12,824
Select white oaks	2,538	23,553	26,091	-12,001	1,942	-603	15,429	-22,589	-7,159
Other oaks	3,647	28,188	31,835	-16,774	2,000	-693	16,367	-26,727	-10,360
Black locust	1,359	3,422	4,782	-2,239	1,850	-1,200	3,194	-1,739	1,455
Basswood	892	7,655	8,547	-2,111	793	-325	6,903	-3,198	3,705
Other hardwoods	12,748	22,644	35,392	-13,313	2,095	-444	23,730	-10,457	13,273
Total hardwoods	124,319	547,492	671,811	-166,135	63,192	-20,110	548,758	-272,079	276,679
All species	140,477	604,115	744,592	-177,120	73,462	-22,475	618,459	-289,130	329,329

Table 32.--Average annual net growth and average annual removals of growing-stock volume on timberland by species, Pennsylvania, 1977-88

(In thousands of cubic feet)

Species	Net growth	Removals
White and red pine	23,435	5,248
Virginia pine	1,419	171
Other yellow pines	2,494	2,683
Eastern hemlock	37,903	8,079
Other softwoods	4,449	870
Total softwoods	69,701	17,051
Red maple	128,173	30,300
Sugar maple	52,199	22,008
Yellow birch	4,576	2,415
Sweet birch	26,004	5,004
Hickory	12,502	6,989
Beech	27,696	10,168
White ash	33,565	11,584
Black walnut	3,704	449
Yellow-poplar	31,530	15,960
Blackgum	5,087	915
Aspen	6,387	1,556
Black cherry	79,854	29,866
Chestnut oak	12,344	23,463
Northern red oak	59,514	46,690
Select white oaks	15,429	22,589
Other oaks	16,367	26,727
Black locust	3,194	1,739
Basswood	6,903	3,198
Other hardwoods	23,730	10,457
Total hardwoods	548,758	272,079
All species	618,459	289,130

Average annual net growth and average annual removals of growing-stock volume by species, Pennsylvania, 1977-88

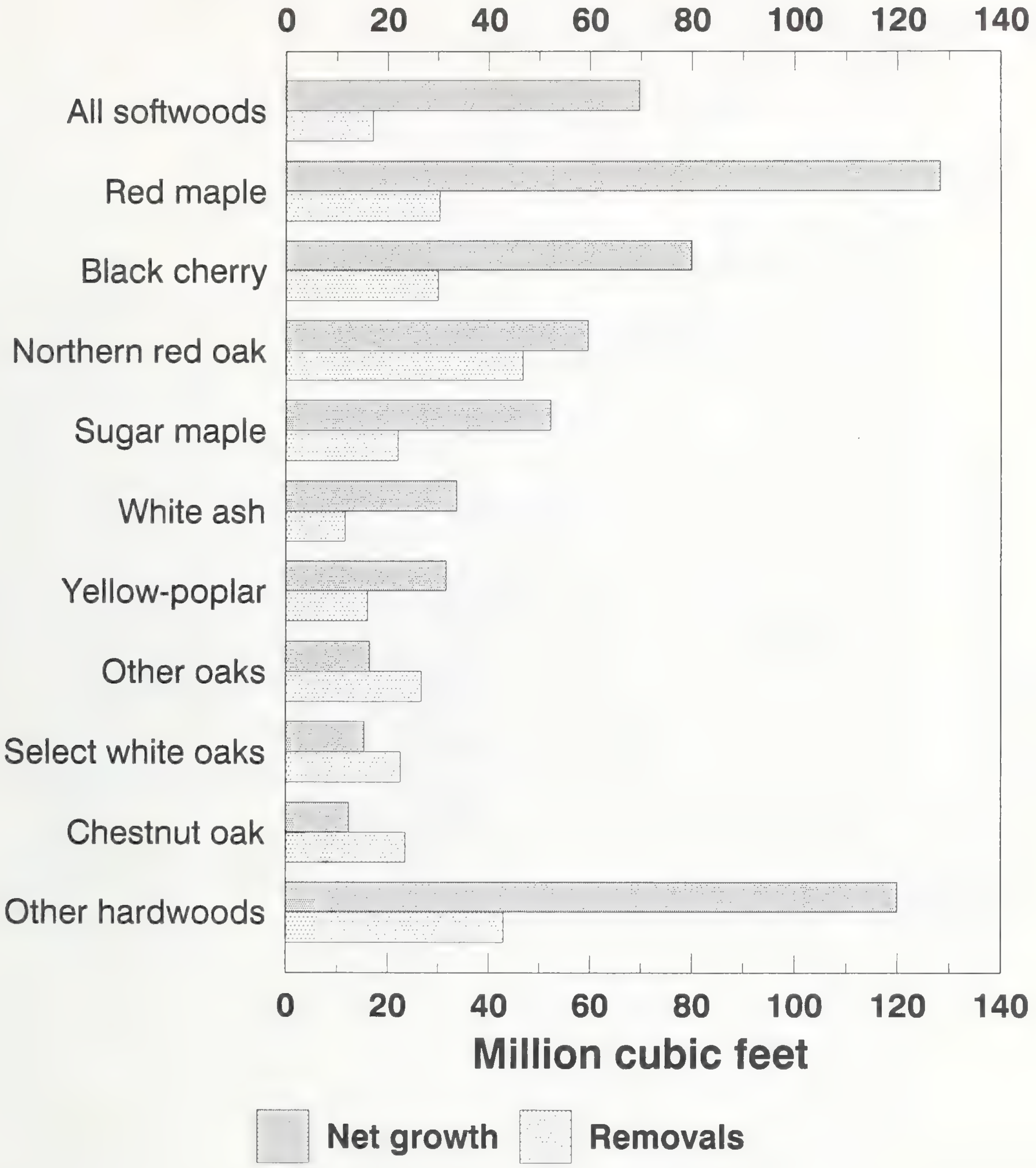


Table 33.--Average annual net growth and average annual removals of sawtimber volume on timberland by species, Pennsylvania, 1977-88

(In thousands of board feet)

Species	Net growth	Removals
White and red pine	97,404	17,697
Virginia pine	5,097	324
Other yellow pines	7,453	1,487
Eastern hemlock	136,641	26,325
Other softwoods	8,314	2,186
Total softwoods	254,909	48,020
Red maple	394,374	83,607
Sugar maple	178,636	60,495
Yellow birch	14,699	4,288
Sweet birch	62,405	6,883
Hickory	47,738	24,914
Beech	97,896	30,107
White ash	126,981	38,285
Black walnut	10,030	1,379
Yellow-poplar	153,927	75,781
Blackgum	8,962	2,558
Aspen	11,481	895
Black cherry	332,486	96,668
Chestnut oak	90,761	65,480
Northern red oak	313,749	184,385
Select white oaks	101,737	84,016
Other oaks	107,295	99,861
Black locust	16,663	4,011
Basswood	32,493	10,223
Other hardwoods	83,979	20,653
Total hardwoods	2,186,291	894,491
All species	2,441,200	942,511

Average annual net growth and average annual removals of sawtimber volume by species, Pennsylvania, 1977-88

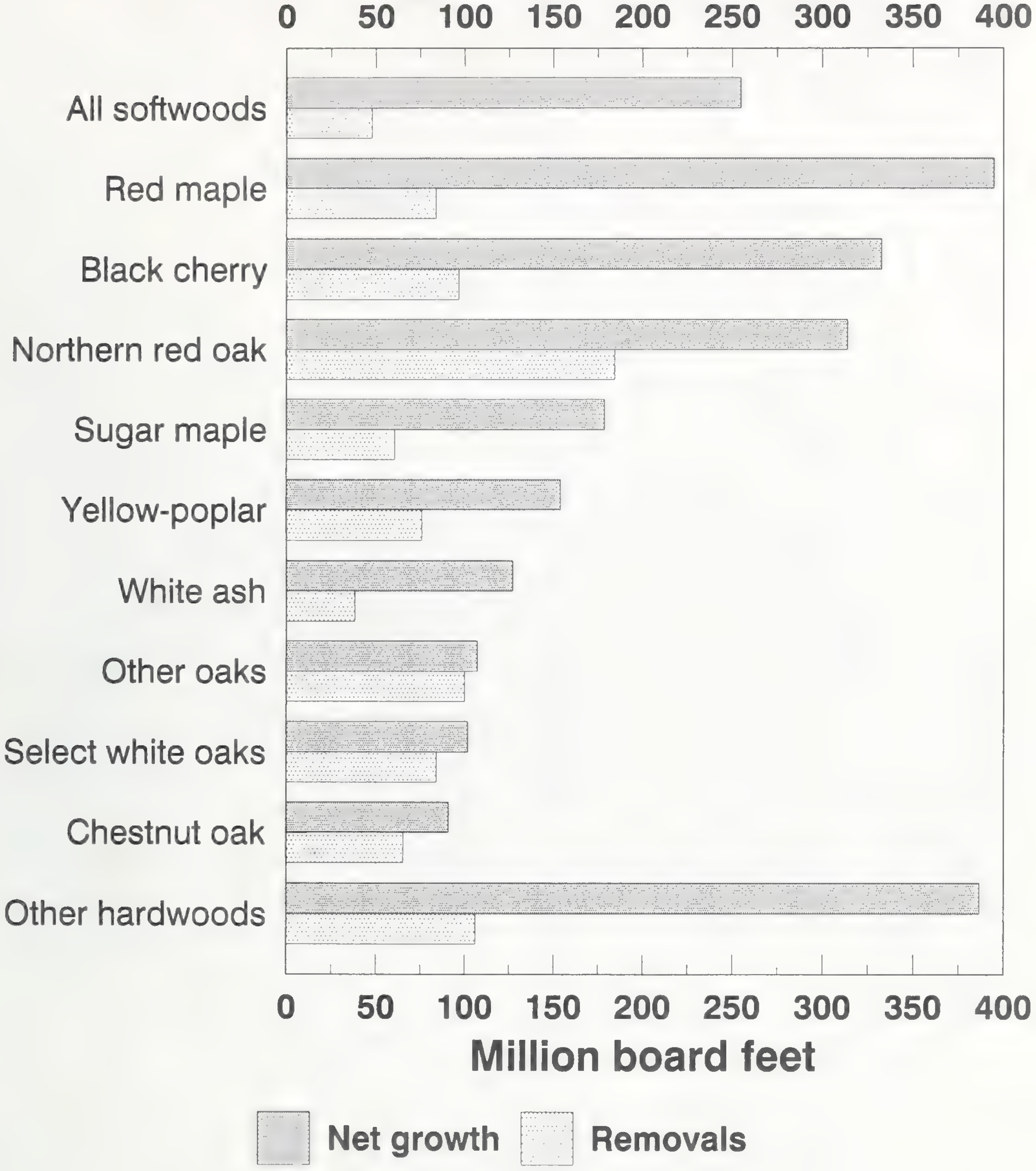


Table 34.--Average annual mortality of growing-stock and sawtimber volume on timberland by species, Pennsylvania, 1977-88

(In thousands of feet)

Species	Growing-stock (cubic feet)	Sawtimber (board feet)
White and red pine	3,262	6,959
Virginia pine	1,133	1,846
Other yellow pines	3,134	5,898
Eastern hemlock	3,331	10,674
Other softwoods	125	106
Total softwoods	10,985	25,483
Red maple	18,341	20,719
Sugar maple	10,859	22,934
Yellow birch	2,616	3,571
Sweet birch	6,629	7,901
Hickory	4,950	12,875
Beech	4,766	12,811
White ash	6,267	14,912
Black walnut	360	1,396
Yellow-poplar	2,658	5,046
Blackgum	37	0
Aspen	4,301	3,409
Black cherry	9,915	16,679
Chestnut oak	29,383	56,887
Northern red oak	18,614	50,350
Select white oaks	12,001	21,193
Other oaks	16,774	38,245
Black locust	2,239	2,096
Basswood	2,111	3,387
Other hardwoods	13,313	19,775
Total hardwoods	166,135	314,188
All species	177,120	339,671

Table 35.--Average annual net growth and average annual removals of growing-stock volume on timberland by ownership class and species group, Pennsylvania, 1977-88

(In thousands of cubic feet)

Ownership class	Net growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
National Forest	1,749	19,717	21,466	411	10,961	11,372
Other public	10,573	83,044	93,618	2,236	42,058	44,295
Forest industry	2,831	31,675	34,506	1,015	11,010	12,026
Other private	54,547	414,322	468,869	13,388	208,049	221,437
All classes	69,701	548,758	618,459	17,051	272,079	289,130

Table 36.--Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group, Pennsylvania, 1977-88

(In thousands of board feet)

Ownership class	Net growth			Removals		
	Softwoods	Hardwoods	All groups	Softwoods	Hardwoods	All groups
National Forest	6,993	111,345	118,338	1,647	31,401	33,048
Other public	36,810	385,819	422,629	7,061	112,123	119,184
Forest industry	9,804	132,362	142,166	3,908	38,995	42,903
Other private	201,303	1,556,765	1,758,068	35,405	711,971	747,376
All classes	254,909	2,186,291	2,441,200	48,020	894,491	942,511

Table 37.--Output[a] of timber products by product, softwoods and hardwoods, and source of material, Pennsylvania, 1988

(In standard units and thousands of cubic feet)

Product and species	Output from roundwood			Output from primary manufacturing residue	Total, timber products output
	Board-foot[b] output	Cordwood output	Output in common units		
	Thousand board feet	Standard cords	--------------	Thousand cubic feet	--------------
			INDUSTRIAL PRODUCTS		
Sawlogs					
Softwoods	42,804	--	7,258	0	7,258
Hardwoods	1,050,075	--	109,380	0	109,380
Total	1,092,879	--	116,638	0	116,638
Veneer					
Softwoods	84	--	14	0	14
Hardwoods	36,751	--	1,930	0	1,930
Total	36,835	--	1,944	0	1,944
Other products[c]					
Softwoods	4,899	--	2,554	0	2,554
Hardwoods	16,485	--	2,130	885	3,015
Total	21,384	--	4,684	885	5,569
Pulpwood[d]					
Softwoods	--	42,672	3,627	6	3,633
Hardwoods	--	672,643	57,175	1,656	58,831
Total	--	715,315	60,802	1,662	62,464
			TOTAL, INDUSTRIAL PRODUCTS		
All products					
Softwoods	47,787	42,672	13,453	6	13,459
Hardwoods	1,103,311	672,643	170,615	2,541	173,156
Total	1,151,098	715,315	184,068	2,547	186,615
			NONINDUSTRIAL PRODUCTS		
Fuelwood[e]					
Softwoods	--	1,600	128	13	141
Hardwoods	--	245,987	19,679	1,325	21,004
Total	--	247,587	19,807	1,338	21,145
			TOTAL, ALL PRODUCTS		
All products[f]					
Softwoods	47,787	44,272	13,581	19	13,600
Hardwoods	1,103,311	918,630	190,294	3,866	194,160
Total	1,151,098	962,902	203,875	3,885	207,760

[a] The volume of roundwood harvested from timber within the state and received at primary manufacturing plants in the state, in other states, and in foreign countries. Reported volumes by product may be underestimated because overseas shipments are difficult to track.

[b] International 1/4-inch rule.

[c] Includes mine timbers, cabin logs, cooperage logs, fence stock, and charcoal wood.

[d] A standard cord of pulpwood is equivalent to 85 cubic feet of solid wood.

[e] A standard cord of fuelwood is equivalent to 80 cubic feet of solid wood.

[f] Does not include 12,000 cubic feet of softwood and 2,872,000 cubic feet of hardwood residues used for agricultural bedding.

Table 38.--Output of roundwood products by product, softwoods and hardwoods, and source of material,[a] Pennsylvania, 1988

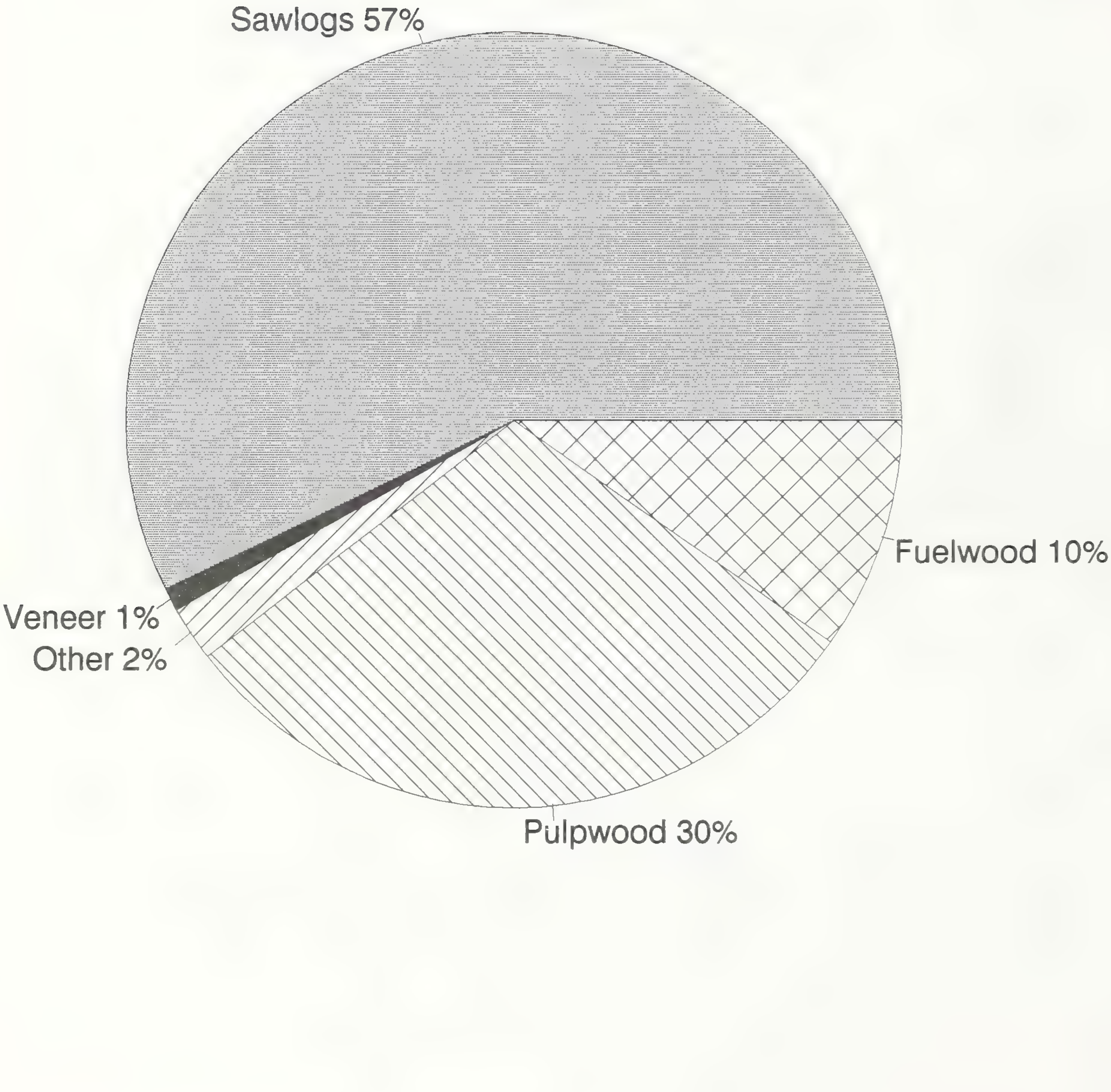
(In thousands of cubic feet)

Product and species	Growing-stock trees			Rough or rotten cull trees	Salvable dead trees	Other sources	All sources
	Poletimber	Sawtimber	Total				
INDUSTRIAL PRODUCTS							
Sawlogs							
Softwoods	0	4,567	4,567	26	50	2,615	7,258
Hardwoods	0	68,833	68,833	382	755	39,410	109,380
Total	0	73,400	73,400	408	805	42,025	116,638
Veneer							
Softwoods	0	9	9	0	0	5	14
Hardwoods	0	1,227	1,227	0	0	703	1,930
Total	0	1,236	1,236	0	0	708	1,944
Other products							
Softwoods	363	1,158	1,521	22	0	1,011	2,554
Hardwoods	302	966	1,268	19	0	843	2,130
Total	665	2,124	2,789	41	0	1,854	4,684
Pulpwood							
Softwoods	515	1,644	2,159	32	0	1,436	3,627
Hardwoods	8,119	25,917	34,036	497	0	22,642	57,175
Total	8,634	27,561	36,195	529	0	24,078	60,802
TOTAL, INDUSTRIAL PRODUCTS							
All products							
Softwoods	878	7,378	8,256	80	50	5,067	13,453
Hardwoods	8,421	96,943	105,364	898	755	63,598	170,615
Total	9,299	104,321	113,620	978	805	68,665	184,068
NONINDUSTRIAL PRODUCTS							
Fuelwood							
Softwoods	--	--	11	34	37	46	128
Hardwoods	--	--	1,655	5,203	5,754	7,067	19,679
Total	--	--	1,666	5,237	5,791	7,113	19,807
TOTAL, ALL PRODUCTS							
All products							
Softwoods	--	--	8,267	114	87	5,113	13,581
Hardwoods	--	--	107,019	6,101	6,509	70,665	190,294
Total	--	--	115,286	6,215	6,596	75,778	203,875

[a] Growing-stock trees, rough or rotten cull trees, and salvable dead trees are from timberland only. Other sources include trees less than 5.0 inches in diameter at breast height and tree tops and limbs from timberland, as well as any material from nontimberland or nonforest land such as fencerows, pastureland, and urban areas.

Output of roundwood by product, Pennsylvania, 1988

(cubic feet)



Total is 203.9 million cubic feet

Table 39.--Timber removals from growing stock and sawtimber on timberland by component[a] and softwoods and hardwoods, Pennsylvania, 1988

Components of timber removals	Growing stock			Sawtimber		
	Softwoods	Hardwoods	All species	Softwoods	Hardwoods	All species
	----- Thousand cubic feet -----			----- Thousand board feet[b] -----		
Roundwood products						
Sawlogs	4,567	68,833	73,400	18,289	275,643	293,932
Veneer	9	1,227	1,236	36	4,914	4,950
Other products	1,521	1,268	2,789	4,763	3,971	8,734
Pulpwood	2,159	34,036	36,195	6,761	106,588	113,349
Fuelwood	11	1,655	1,666	22	3,249	3,271
All products	8,267	107,019	115,286	29,871	394,365	424,236
Logging residue	135	1,904	2,039	61	939	1,000
Reserve withrawals	547	15,449	15,996	2,112	35,661	37,773
Total removals	8,949	124,372	133,321	32,044	430,965	463,009

[a] Logging residue does not include material from tree tops and limbs. Reserve withdrawals include land sufficiently productive to be classed as timberland (wilderness, parks, etc.) but withdrawn from production, average annual basis.

[b] International 1/4-inch rule.

Table 40.--Volume of unused residues from primary manufacturing plants by softwoods and hardwoods, type of residue,[a] and industry, Pennsylvania, 1988

(In thousands of cubic feet)

Species and type of residue	Lumber	Veneer	Other industries	All industries
Softwoods				
Coarse	197	0	12	209
Fine	101	0	6	107
Total	298	0	18	316
Hardwoods				
Coarse	3,450	0	126	3,576
Fine	3,429	0	59	3,488
Total	6,879	0	185	7,064
All species				
Coarse	3,647	0	138	3,785
Fine	3,530	0	65	3,595
Total	7,177	0	203	7,380

[a] Coarse residues include slabs, edgings, trimmings, veneer cores, and other material suitable for chipping. Fine residues include sawdust, shavings, and other material unsuitable for chipping.

WESTERN UNIT TABLES

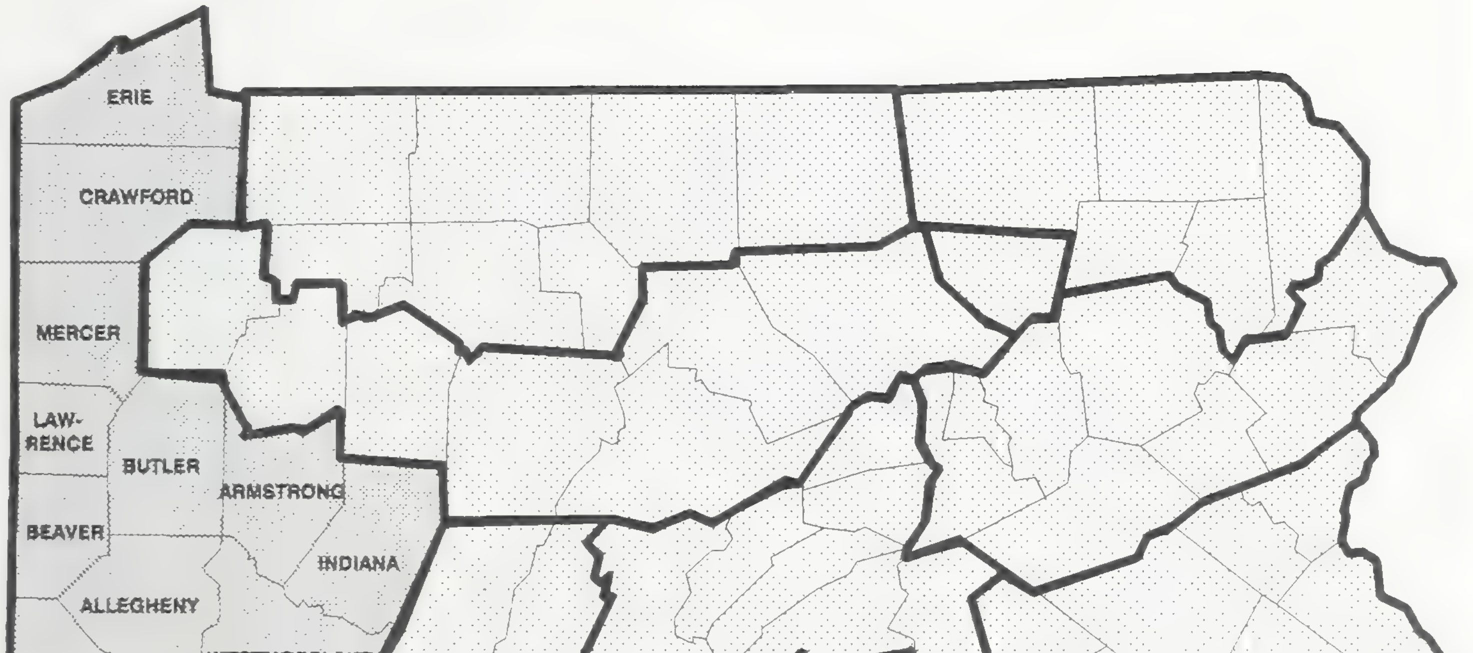


Table 41.--Area of timberland by forest type, forest-type group, and stand-size class, Western Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	15.2	.0	.0	.0	15.2	54.9
White pine	.0	20.9	4.7	.0	25.6	45.0
Hemlock	15.5	.0	5.5	.0	21.0	50.0
Scotch pine	5.5	5.4	.0	.0	10.9	70.7
White/red pine group	36.2	26.3	10.2	.0	72.7	26.5
Norway spruce	5.5	.0	.0	.0	5.5	100.0
Spruce/fir group	5.5	.0	.0	.0	5.5	100.0
Eastern redcedar/hardwood	.0	.0	5.5	.0	5.5	100.0
Other oak/pine	10.4	.0	.0	.0	10.4	70.7
Oak/pine group	10.4	.0	5.5	.0	15.8	57.8
Post, black, or bear oak	38.5	5.5	.0	.0	43.9	35.5
White oak/red oak/hickory	54.2	11.4	5.4	.0	70.9	27.8
White oak	34.9	5.6	.0	.0	40.5	37.8
Northern red oak	33.6	6.9	11.0	.0	51.6	33.5
Y. poplar/wh. oak/no. red oak	33.3	.0	.0	.0	33.3	40.3
Black locust	5.2	11.4	5.5	.0	22.1	50.0
Black walnut	.0	5.6	5.1	.0	10.7	70.8
Yellow-poplar	32.2	.0	15.5	.0	47.7	33.4
Hawthorn/reverting field	.0	.0	33.9	.0	33.9	40.7
Sassafras/persimmon	.0	5.6	4.8	.0	10.4	70.9
Red maple/central hardwoods	14.8	11.3	33.5	.0	59.7	30.2
Mixed central hardwoods	356.7	149.3	107.3	.0	613.3	7.9
Oak/hickory group	603.3	212.6	222.0	.0	1,038.0	5.6
Black ash/Amer. elm/red maple	37.6	4.5	21.9	.0	64.0	28.9
Red maple(upland)	15.4	15.5	16.0	.0	47.0	33.4
River birch/sycamore	5.4	.0	.0	.0	5.4	100.0
Willow	10.1	5.2	15.5	.0	30.8	39.7
Sycamore/pecan/American elm	5.1	5.6	.0	.0	10.7	70.8
Elm/ash/red maple group	73.6	30.9	53.4	.0	157.8	17.7
Sugar maple/beech/yellow birch	217.4	30.7	22.4	.0	270.4	13.3
Black cherry	171.5	174.6	98.6	.0	444.6	10.1
Red maple/northern hardwoods	112.1	71.9	11.4	.0	195.4	15.8
Pin cherry/reverting field	5.4	5.8	53.6	5.5	70.3	27.7
Mixed northern hardwoods	110.5	73.7	27.2	.0	211.3	15.6
Northern hardwoods group	616.8	356.6	213.1	5.5	1,192.0	5.3
Aspen	5.2	39.7	43.0	.0	87.9	24.6
Aspen/birch group	5.2	39.7	43.0	.0	87.9	24.6
All forest types	1,351.0	665.9	547.3	5.5	2,569.7	2.0
SE	4.3	7.9	8.6	100.0	2.0	

Table 42.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Western Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	2,926	318	1,919	2,390	2,498	1,211	150	31
Virginia pine	0	0	89	0	44	0	0	0
Other yellow pines	312	662	1,524	2,190	850	395	249	16
Eastern hemlock	9,426	5,243	4,569	2,775	1,563	1,346	665	334
Other softwoods	1,982	1,673	710	360	358	72	110	0
Total softwoods	14,646	7,895	8,811	7,714	5,313	3,025	1,176	382
Red maple	110,668	44,400	23,843	14,254	7,852	4,483	2,390	1,560
Sugar maple	58,630	15,493	8,791	5,598	3,266	2,155	1,508	1,103
Yellow birch	6,684	1,643	909	836	501	302	141	31
Sweet birch	12,369	3,953	1,922	2,006	425	201	248	106
Hickory	15,692	3,931	2,697	2,664	2,565	1,731	660	389
Beech	12,348	5,121	1,488	1,752	1,133	791	605	380
White ash	40,489	13,898	6,418	3,980	2,551	1,505	791	475
Black walnut	1,280	2,606	1,552	1,315	519	431	342	195
Yellow-poplar	12,904	4,867	2,777	2,228	1,909	1,396	1,226	786
Blackgum	6,891	2,055	1,038	527	247	179	127	105
Aspen	14,516	4,531	2,024	1,785	1,050	819	149	64
Black cherry	144,084	58,904	22,926	14,190	9,004	6,430	3,279	1,937
Chestnut oak	1,032	669	306	651	400	282	221	16
Northern red oak	12,760	6,548	2,955	3,256	2,907	2,279	1,374	1,271
Select white oaks	5,886	1,701	2,049	1,808	1,706	1,566	1,022	538
Other oaks	6,688	4,679	1,985	2,037	1,618	1,006	953	655
Black locust	4,707	2,224	2,903	2,285	1,222	347	225	137
Basswood	2,190	316	772	1,015	286	239	244	121
Other hardwoods	94,323	25,411	12,108	7,772	4,811	2,093	985	473
Total hardwoods	564,140	202,950	99,463	69,961	43,974	28,236	16,493	10,344
All species	578,786	210,846	108,275	77,675	49,286	31,261	17,668	10,726
SE	4.7	5.9	4.8	4.3	4.4	4.5	4.8	5.4

Table 42.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	14	0	31	0	8,246	11,489	33.5
Virginia pine	0	0	0	0	133	133	62.8
Other yellow pines	24	0	10	0	5,259	6,234	33.0
Eastern hemlock	219	57	168	0	11,697	26,365	21.0
Other softwoods	0	0	0	0	1,609	5,264	48.5
Total softwoods	257	57	209	0	26,944	49,485	15.3
Red maple	912	475	635	85	56,491	211,558	8.1
Sugar maple	621	235	463	88	23,827	97,950	9.8
Yellow birch	63	13	0	0	2,796	11,124	25.9
Sweet birch	42	13	18	0	4,981	21,304	19.3
Hickory	136	103	58	15	11,019	30,641	12.9
Beech	255	232	338	36	7,013	24,482	17.0
White ash	347	176	201	9	16,454	70,840	12.0
Black walnut	78	31	17	0	4,481	8,367	24.7
Yellow-poplar	423	225	325	41	11,337	29,108	20.1
Blackgum	49	13	28	6	2,320	11,266	21.7
Aspen	0	12	0	0	5,905	24,952	30.2
Black cherry	915	382	481	13	59,556	262,544	7.0
Chestnut oak	24	39	36	10	1,985	3,686	35.0
Northern red oak	929	460	799	133	16,363	35,672	11.5
Select white oaks	464	275	326	91	9,845	17,431	17.3
Other oaks	445	371	562	67	9,699	21,066	18.1
Black locust	63	31	34	0	7,247	14,179	22.6
Basswood	36	52	16	0	2,781	5,288	29.0
Other hardwoods	304	177	313	37	29,072	148,805	10.8
Total hardwoods	6,105	3,316	4,651	631	283,173	1,050,264	3.7
All species	6,362	3,373	4,859	631	310,117	1,099,749	3.6
SE	6.2	6.7	7.2	12.5	3.1	3.6	

Table 43.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Western Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									SE
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	
White and red pine	588	0	0	588	1,207	0	14	1,221	1,809	52.2
Other yellow pines	732	72	0	805	886	21	0	907	1,711	58.3
Eastern hemlock	289	25	0	314	134	36	41	211	525	34.0
Other softwoods	142	0	0	142	0	0	0	0	142	77.0
Total softwoods	1,752	97	0	1,849	2,227	57	55	2,339	4,188	33.3
Red maple	409	46	32	487	1,082	79	159	1,321	1,808	18.4
Sugar maple	60	17	46	123	109	46	25	181	303	34.1
Yellow birch	236	15	0	251	241	78	0	320	571	32.7
Sweet birch	264	0	12	276	508	82	15	606	882	33.5
Hickory	73	0	26	99	107	119	83	308	407	25.2
Beech	153	0	9	163	85	19	10	114	277	54.1
White ash	1,094	61	55	1,210	405	77	9	492	1,702	21.2
Black walnut	32	0	0	32	104	0	10	114	146	75.0
Yellow-poplar	0	0	0	0	61	56	7	124	124	43.0
Blackgum	46	0	0	46	23	0	0	23	68	74.6
Aspen	562	58	0	620	1,035	40	0	1,075	1,695	27.8
Black cherry	1,856	103	32	1,991	2,071	242	113	2,426	4,417	15.6
Chestnut oak	70	21	0	91	0	0	26	26	118	49.5
Northern red oak	834	131	57	1,023	155	110	86	351	1,373	31.9
Select white oaks	417	39	60	517	463	65	19	547	1,063	27.1
Other oaks	742	94	82	918	369	20	55	444	1,362	36.7
Black locust	3,198	216	54	3,467	1,005	155	28	1,188	4,655	21.0
Basswood	0	0	0	0	194	0	0	194	194	78.7
Other commercial hardwoods	1,785	136	80	2,000	993	89	98	1,180	3,180	20.9
Noncommercial hardwoods	2,980	97	0	3,077	2,389	94	133	2,616	5,693	14.1
Total hardwoods	14,812	1,035	543	16,391	11,399	1,370	878	13,647	30,038	6.5
All species	16,564	1,133	543	18,240	13,625	1,427	933	15,986	34,226	6.9
SE	8.9	17.4	22.3	8.4	10.9	13.4	13.7	9.5	6.9	

Table 44.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Western Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Spruce species	2	4	0	0	6	57.3
Red pine	0	0	0	0	0	100.0
Pitch pine	0	0	0	0	0	100.0
Eastern white pine	0	1	3	0	4	54.1
Scotch pine	1	0	0	0	1	70.9
Eastern hemlock	29	9	0	0	38	30.7
Boxelder	1	1	4	0	7	51.4
Striped maple	3	0	3	0	6	61.5
Red maple	508	217	208	0	933	10.5
Silver maple	0	2	0	0	2	86.7
Sugar maple	508	73	79	0	660	15.9
Ailanthus species	6	5	6	0	17	41.9
Alder species	48	0	6	0	54	50.9
Hercules club	5	6	17	0	28	34.8
Serviceberry	39	7	10	0	57	29.5
Barberry	8	1	13	0	22	64.3
Yellow birch	8	1	3	0	12	32.8
Sweet birch	69	44	16	0	130	32.2
American hornbeam	90	35	3	0	129	22.4
Hickory species	47	23	15	0	85	15.5
Bitternut hickory	2	1	4	0	7	51.1
Pignut hickory	3	5	0	0	7	41.7
Shagbark hickory	2	2	3	0	6	43.5
Mockernut hickory	2	0	2	0	4	59.7
Hackberry	1	3	0	0	5	77.0
Eastern redbud	0	0	0	0	0	100.0
Flowering dogwood	242	85	71	0	398	14.2
Alternate-leaved dogwood	5	3	18	0	26	67.6
Silky dogwood	17	19	4	0	40	57.3
Panicled dogwood	96	293	514	1	905	26.4
Red-osier dogwood	82	28	137	0	247	39.6
Hawthorn species	190	179	262	0	631	9.6
American hazelnut	38	19	0	0	57	45.1
Beaked hazelnut	1	0	0	0	1	100.0
American beech	161	16	13	0	190	15.3
Russian olive	0	1	18	0	19	62.1
White ash	466	256	290	0	1,013	13.9
Green ash	10	5	2	0	18	54.1
Huckleberry	9	0	60	0	68	78.9
Witch-hazel	301	130	6	0	437	15.1
Butternut	0	0	2	0	2	100.0
Black walnut	1	8	3	0	12	48.1
Mountain laurel	28	25	0	0	52	54.9
Common spicebush	648	201	90	0	939	14.2
Yellow-poplar	49	16	45	0	111	23.6
Bush honeysuckle	16	52	92	0	160	31.3
Cucumbertree	24	8	1	0	33	36.5
Apple species	13	19	59	0	91	23.6
Black tupelo	48	26	11	0	85	21.4
Eastern hophornbeam	85	10	40	0	135	31.3
Ninebark	8	0	0	0	8	100.0
American sycamore	0	0	0	0	0	100.0
Eastern cottonwood	0	0	4	0	5	92.8
Bigtooth aspen	7	9	19	0	35	25.0
Quaking aspen	12	14	47	0	73	34.4
Cherry species	3	0	6	0	9	69.7
Pin cherry	34	2	11	0	47	67.9
Black cherry	2,207	813	522	0	3,541	8.1
Chokecherry	282	74	42	0	399	25.9
White oak	56	19	22	0	96	22.4
Swamp white oak	9	0	0	0	9	100.0

Table 44.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Scarlet oak	12	1	1	0	14	46.3
Shingle oak	1	8	7	0	17	52.3
Chestnut oak	6	2	0	0	8	39.8
Northern red oak	159	51	37	0	248	12.5
Black oak	33	11	10	0	54	23.4
Buckthorn species	12	0	0	0	12	100.0
Rhododendron species	2	0	0	0	2	70.8
Smooth sumac	0	4	1	0	5	53.3
Staghorn sumac	2	5	23	0	30	44.5
Currant species	17	2	0	0	19	36.7
Black locust	8	4	21	0	33	37.0
Rose species	180	140	153	0	473	16.7
Rubus species	2,458	1,469	1,480	0	5,406	7.6
Willow species	0	41	2	0	43	59.2
Black willow	0	18	26	0	43	48.8
American elderberry	70	20	5	0	95	24.9
Red-berried alder	3	0	0	0	3	100.0
Sassafras	161	140	280	0	580	16.1
Spirea species	53	16	68	0	138	54.6
American basswood	1	1	1	0	3	46.1
Elm species	0	0	2	0	2	71.2
American elm	37	25	18	0	80	19.8
Slippery elm	40	27	55	0	121	20.2
Blueberry	226	185	264	0	675	23.1
Viburnum species	2	20	0	0	22	91.0
Maple-leaved viburnum	111	101	42	0	254	25.9
Wild raisin	33	0	29	0	62	52.8
Arrowwood	214	305	124	0	643	29.5
Nannyberry	0	2	7	0	9	67.9
Blackhaw	9	1	2	0	12	45.9
Unknown deciduous shrub	117	63	43	0	223	33.5
Unknown evergreen shrub	1	0	0	0	1	100.0
Unknown tree	17	1	0	0	19	78.1
All species	10,520	5,438	5,508	1	21,467	3.9
SE	6.7	10.2	10.6	100.0	3.9	

Table 45.--Net dry weight[a] of all trees on timberland by class of material and species group, Western Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	2,535	44,714	47,249	3.8
Upper stem	353	9,939	10,292	3.6
Total sawtimber trees	2,888	54,653	57,541	3.8
Poletimber trees	1,109	26,612	27,721	3.4
All growing stock	3,997	81,265	85,262	3.0
Rough cull trees[b]	36	5,975	6,011	6.7
Rotten cull trees[b]	9	1,431	1,440	10.2
Salvable dead trees[c]	60	1,392	1,453	13.0
Saplings[c]	286	12,931	13,217	4.7
Tops - growing stock	1,457	28,333	29,791	2.9
Tops - rough and rotten	15	2,740	2,755	6.1
All nongrowing stock	1,864	52,802	54,666	2.6
All classes	5,861	134,067	139,928	2.7
SE	16.0	2.7	2.7	

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[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 46.--Net volume of all trees on timberland by class of timber and species group, Western Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	76.3	75.7	886.9	823.5	1,862.4	3.9
Upper stem	12.3	9.6	209.7	180.9	412.4	3.7
Total sawtimber trees	88.5	85.3	1,096.6	1,004.4	2,274.8	3.9
Poletimber trees	40.9	29.6	798.6	400.8	1,269.9	3.6
Total growing-stock trees	129.4	114.9	1,895.2	1,405.1	3,544.6	3.1
Rough trees:						
Sawtimber size	.7	.2	48.3	22.1	71.4	8.6
Poletimber size	.0	.0	56.7	35.4	92.1	10.0
Total rough trees	.7	.2	105.0	57.5	163.5	7.3
Rotten trees:						
Sawtimber size	.0	.4	11.5	15.7	27.6	11.1
Poletimber size	.0	.0	2.4	1.6	4.0	25.6
Total rotten trees	.0	.4	13.9	17.3	31.6	10.2
Salvable dead[a] trees:						
Sawtimber size	.3	.0	6.7	10.7	17.6	22.0
Poletimber size	2.1	.1	9.8	5.0	17.0	13.7
Total salvable dead trees	2.4	.1	16.4	15.7	34.6	13.5
All classes	132.5	115.6	2,030.6	1,495.6	3,774.3	3.0
SE	32.8	17.7	3.9	4.7	3.0	

[a] Includes noncommercial species.

Table 47.--Net volume of growing-stock trees on timberland by species and diameter class, Western Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	8.5	25.7	27.7	8.6	.7	.0	.0	.0	.6	.0	71.6
Eastern hemlock	6.7	10.7	10.3	12.0	7.7	6.8	3.1	10.3	5.9	.0	73.6
Other softwoods	23.3	19.3	19.7	7.7	.6	.6	.0	.0	.0	.0	71.2
Total softwoods	38.6	55.7	57.6	28.3	9.0	7.4	3.1	10.3	6.5	.0	216.4
Red maple	33.2	54.0	57.5	42.3	42.4	42.5	29.5	14.3	27.4	.9	344.0
Sugar maple	21.0	29.4	37.5	30.9	31.0	28.4	16.3	19.4	18.8	2.8	235.6
Yellow birch	2.2	2.1	6.0	2.6	3.3	2.4	.0	.0	.0	.0	18.7
Sweet birch	9.6	3.5	2.8	6.7	5.6	3.8	.9	.0	.5	.0	33.4
Hickory	4.4	21.5	30.3	12.4	16.7	5.4	9.0	3.5	5.0	.8	109.1
Beech	4.2	6.3	12.2	6.1	6.9	7.1	9.0	5.7	20.5	6.6	84.7
White ash	17.7	14.7	16.3	13.8	12.5	18.8	9.2	5.7	4.8	.8	114.4
Yellow-poplar	9.6	10.8	16.3	18.4	25.3	20.7	19.4	11.4	32.7	4.4	168.9
Blackgum	3.1	1.9	1.4	3.9	1.1	1.9	.0	.0	1.7	.0	15.0
Black cherry	40.3	73.4	91.7	81.0	43.4	36.5	23.5	23.8	23.0	1.2	437.8
Chestnut oak	2.6	5.3	5.8	6.4	1.0	1.3	4.3	.0	.4	.8	28.0
Northern red oak	11.5	28.3	32.6	31.2	34.6	30.4	23.4	21.2	43.2	11.2	267.7
Select white oaks	3.5	10.0	17.6	24.9	18.0	18.8	14.6	11.0	18.2	20.1	156.7
Other oaks	6.8	7.0	13.1	19.4	17.8	17.8	34.7	16.2	31.1	8.1	172.0
Basswood	4.4	5.0	3.7	4.4	1.3	2.9	.5	.0	.9	.0	23.0
Other hardwoods	36.0	58.8	54.1	35.6	20.9	21.1	6.2	6.7	10.7	1.1	251.1
Total hardwoods	210.0	332.0	398.8	340.0	282.0	259.9	200.7	139.0	239.0	58.9	2,460.1
All species	248.5	387.6	456.4	368.3	290.9	267.3	203.8	149.3	245.4	58.9	2,676.5

Table 48.--Net volume of growing-stock trees on timberland by species and diameter class, Western Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	6.4	19.1	35.2	23.5	3.7	.7	.7	.0	2.5	.0	91.8	43.5
Virginia pine	.3	.0	.4	.0	.0	.0	.0	.0	.0	.0	.7	63.5
Other yellow pines	3.5	11.6	8.8	6.1	5.0	.4	.7	.0	.7	.0	36.9	35.0
Eastern hemlock	11.4	14.1	14.4	19.2	14.2	9.3	8.2	2.5	10.6	.0	103.9	18.7
Other softwoods	2.2	1.8	3.3	.8	2.8	.0	.0	.0	.0	.0	11.0	54.1
Total softwoods	23.8	46.7	62.2	49.6	25.8	10.5	9.6	2.5	13.7	.0	244.3	18.9
Red maple	59.1	86.7	87.8	74.8	57.1	52.0	38.8	23.6	43.1	10.7	533.7	7.3
Sugar maple	25.1	35.5	38.2	38.0	38.0	36.3	25.8	13.5	35.3	10.7	296.4	11.2
Yellow birch	2.5	4.3	5.0	5.1	3.2	.9	2.4	.6	.0	.0	23.9	20.1
Sweet birch	5.9	12.9	4.4	3.7	5.5	3.3	1.9	.6	.9	.0	39.3	24.1
Hickory	7.4	17.7	29.9	33.0	17.1	14.1	5.6	6.0	4.6	1.8	137.2	12.2
Beech	4.0	10.9	14.2	15.9	16.1	13.8	11.7	13.8	28.7	5.1	134.2	15.0
White ash	16.2	23.3	27.4	24.9	18.6	14.3	14.5	9.8	14.0	1.9	165.1	10.1
Black walnut	3.8	7.6	5.0	6.2	6.7	5.1	2.9	1.4	1.1	.0	39.8	20.5
Yellow-poplar	7.5	14.6	24.1	28.6	34.9	29.8	20.0	13.5	29.5	8.1	210.6	13.4
Blackgum	2.5	3.3	3.1	3.1	2.8	3.2	2.2	.3	1.8	.6	22.8	17.3
Aspen	7.3	12.0	14.7	15.5	3.8	2.1	.0	.6	.0	.0	55.9	22.8
Black cherry	63.3	95.4	104.6	114.0	84.5	66.4	39.5	21.4	37.4	1.5	628.1	6.7
Chestnut oak	.9	3.1	3.9	4.2	4.8	.4	1.0	1.6	1.8	1.2	22.9	24.8
Northern red oak	9.2	20.3	31.8	39.3	32.8	39.7	38.6	24.3	59.9	19.7	315.6	10.1
Select white oaks	4.8	10.4	17.9	24.3	22.3	15.8	17.6	12.8	23.3	12.3	161.5	13.7
Other oaks	5.3	12.6	17.7	16.3	22.4	21.1	17.9	18.6	41.3	9.8	183.2	13.7
Black locust	6.2	10.8	10.4	4.4	4.6	2.9	2.4	1.6	2.5	.0	45.8	19.3
Basswood	3.1	7.3	3.4	4.5	6.3	4.2	1.4	3.2	1.1	.0	34.5	25.9
Other hardwoods	32.8	48.8	51.6	34.0	22.5	13.5	11.8	7.8	22.7	4.4	250.0	10.1
Total hardwoods	266.8	437.3	495.3	489.9	404.1	338.9	256.2	175.1	349.0	87.9	3,300.3	3.2
All species	290.6	484.1	557.4	539.5	429.8	349.4	265.7	177.6	362.7	87.9	3,544.6	3.1
SE	5.2	4.6	4.7	4.8	4.9	5.6	6.3	6.9	7.6	12.7	3.1	

Table 49.--Net volume of sawtimber trees on timberland by species and diameter class, Western Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	79.6	27.3	2.5	.0	.0	.0	2.4	.0	111.8
Eastern hemlock	28.4	39.9	27.9	26.3	13.9	43.7	27.6	.0	207.5
Other softwoods	45.1	20.6	1.7	2.0	.0	.0	.0	.0	69.4
Total softwoods	153.1	87.8	32.1	28.2	13.9	43.7	29.9	.0	388.7
Red maple	-	142.8	166.4	174.4	127.4	63.7	137.2	4.6	816.4
Sugar maple	-	108.3	130.2	122.6	75.5	95.6	98.5	15.5	646.2
Yellow birch	-	5.0	6.7	4.6	.0	.0	.0	.0	16.3
Sweet birch	-	25.8	23.7	14.7	4.6	.0	2.7	.0	71.5
Hickory	-	46.1	72.9	25.9	48.4	14.7	28.5	4.2	240.7
Beech	-	18.4	24.6	27.9	40.8	26.9	95.3	31.0	264.8
White ash	-	50.1	51.1	74.1	37.3	18.1	23.2	4.9	258.8
Yellow-poplar	-	75.2	117.0	102.6	101.1	66.5	198.5	29.7	690.5
Blackgum	-	14.7	5.1	8.6	.0	.0	9.4	.0	37.7
Black cherry	-	260.5	157.1	140.5	101.4	104.5	106.8	4.5	875.3
Chestnut oak	-	18.3	4.3	4.0	16.1	.0	2.1	4.3	49.1
Northern red oak	-	104.8	131.1	123.7	103.2	96.0	223.8	62.0	844.5
Select white oaks	-	79.6	64.7	71.7	59.5	46.7	86.8	102.7	511.7
Other oaks	-	59.3	61.5	65.5	137.4	69.7	139.9	40.9	574.2
Basswood	-	13.3	3.5	9.6	1.8	.0	3.8	.0	31.9
Other hardwoods	-	134.1	88.5	100.5	31.8	32.4	58.2	6.2	451.9
Total hardwoods	-	1,156.3	1,108.4	1,070.9	886.3	634.7	1,214.8	310.4	6,381.7
All species	153.1	1,244.0	1,140.5	1,099.1	900.2	678.4	1,244.7	310.4	6,770.4

Table 50.--Net volume of sawtimber trees on timberland by species and diameter class, Western Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	132.3	100.3	17.1	3.6	3.5	.0	13.5	.0	270.3	44.8
Virginia pine	1.2	.0	.0	.0	.0	.0	.0	.0	1.2	73.3
Other yellow pines	27.2	21.8	19.8	1.4	3.3	.0	3.2	.0	76.7	44.2
Eastern hemlock	43.4	69.3	57.4	39.6	38.0	10.4	51.1	.0	309.3	19.8
Other softwoods	11.3	3.0	10.4	.0	.0	.0	.0	.0	24.6	57.4
Total softwoods	215.4	194.4	104.6	44.6	44.7	10.4	67.9	.0	682.0	20.5
Red maple	-	275.8	240.5	226.0	179.5	113.7	223.2	56.1	1,314.7	9.1
Sugar maple	-	137.1	155.7	160.8	116.9	63.6	184.5	63.9	882.6	14.6
Yellow birch	-	19.8	12.5	3.7	10.2	3.1	.0	.0	49.4	26.8
Sweet birch	-	14.8	23.0	13.3	8.9	3.0	4.9	.0	67.9	29.0
Hickory	-	124.7	78.0	64.9	29.6	30.9	25.1	10.4	363.6	13.2
Beech	-	59.7	62.6	60.7	52.9	71.1	150.0	28.6	485.7	15.9
White ash	-	95.1	76.1	59.1	63.2	44.4	65.0	10.8	413.7	11.5
Black walnut	-	23.5	28.2	23.2	14.4	7.2	5.5	.0	102.0	21.3
Yellow-poplar	-	112.0	153.7	141.8	99.0	69.4	162.6	49.5	787.9	13.4
Blackgum	-	11.2	11.8	14.3	10.1	1.5	9.4	3.2	61.6	20.8
Aspen	-	62.0	18.6	10.4	.0	3.0	.0	.0	94.0	26.3
Black cherry	-	430.6	358.7	288.8	179.5	100.7	185.9	8.6	1,552.7	8.2
Chestnut oak	-	13.8	17.5	1.4	3.9	6.0	8.7	7.6	58.9	26.6
Northern red oak	-	140.1	131.1	171.0	174.5	112.6	307.1	108.7	1,145.1	10.8
Select white oaks	-	92.0	98.8	69.0	78.5	60.1	119.7	66.9	585.1	14.5
Other oaks	-	58.6	89.9	89.6	78.0	88.2	206.8	56.3	667.4	14.5
Black locust	-	16.3	17.1	11.9	12.1	8.1	13.3	.0	78.9	28.8
Basswood	-	17.5	28.0	18.6	7.1	17.0	5.6	.0	93.9	26.5
Other hardwoods	-	131.6	95.8	60.9	58.5	39.2	125.1	25.7	536.9	15.1
Total hardwoods	-	1,836.3	1,697.8	1,489.5	1,177.1	842.5	1,802.3	496.3	9,341.9	4.1
All species	215.4	2,030.7	1,802.5	1,534.1	1,221.7	852.9	1,870.2	496.3	10,023.9	4.0
SE	30.7	4.9	4.9	5.7	6.5	6.9	7.8	12.9	4.0	

Table 51.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Western Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	1.8	.9	12.6	5.3	20.5	2.5	13.8	241.8	12.2	270.3
Virginia pine	.0	.0	.0	-	.0	.0	.0	1.2	-	1.2
Other yellow pines	.0	.0	7.9	-	7.9	6.9	.9	68.9	-	76.7
Eastern hemlock	139.1	-	-	-	139.1	309.3	-	-	-	309.3
Other softwoods	.0	-	-	-	.0	24.6	-	-	-	24.6
Total softwoods	140.9	.9	20.5	5.3	167.5	343.2	14.7	312.0	12.2	682.0
Red maple	10.8	55.6	470.2	261.7	798.4	10.8	69.2	742.2	492.6	1,314.7
Sugar maple	90.9	108.3	229.4	161.2	589.8	98.8	129.6	389.4	264.8	882.6
Yellow birch	.2	.2	15.8	.8	17.1	.7	.7	39.3	8.8	49.4
Sweet birch	.4	.4	17.1	12.3	30.1	.8	1.9	39.2	26.1	67.9
Hickory	8.4	41.3	61.9	49.2	160.8	8.4	60.9	168.7	125.5	363.6
Beech	11.0	36.7	187.7	128.0	363.3	11.7	41.2	247.5	185.2	485.7
White ash	35.3	64.8	88.6	53.8	242.5	35.3	82.9	180.3	115.2	413.7
Black walnut	.0	6.9	24.8	18.5	50.2	.0	9.2	51.2	41.6	102.0
Yellow-poplar	88.2	126.9	163.8	143.4	522.2	88.2	151.1	284.5	264.1	787.9
Blackgum	1.5	4.1	24.9	8.0	38.6	1.5	5.5	36.9	17.7	61.6
Aspen	.0	.0	10.1	3.4	13.5	.0	.0	37.4	56.6	94.0
Black cherry	48.4	139.3	430.4	145.4	763.4	48.4	200.4	954.4	349.5	1,552.7
Chestnut oak	1.8	12.6	5.4	7.9	27.7	1.8	12.6	28.9	15.7	58.9
Northern red oak	175.2	270.4	301.6	126.7	873.9	177.0	309.5	463.7	194.9	1,145.1
Select white oaks	37.0	86.5	117.3	153.4	394.3	37.9	99.4	219.0	228.8	585.1
Other oaks	66.0	106.4	179.7	166.9	518.9	67.1	125.7	234.1	240.5	667.4
Black locust	.0	1.2	32.0	12.2	45.5	.0	1.2	51.9	25.7	78.9
Basswood	3.2	8.0	30.4	6.6	48.3	3.2	20.0	58.8	11.9	93.9
Other hardwoods	26.6	48.4	135.6	98.9	309.4	28.0	52.3	267.2	189.4	536.9
Total hardwoods	604.8	1,118.0	2,526.5	1,558.5	5,807.7	619.5	1,373.2	4,494.4	2,854.9	9,341.9
Percent of hardwood in each grade	10	19	44	27	100	7	15	48	30	100

Table 52.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Western Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	4.8	.0	13.9	1.8	.0	20.5	6.5	21.0	236.1	5.0	1.6	270.3
Virginia pine	.0	.0	.0	-	.0	.0	.0	.0	1.2	-	.0	1.2
Other yellow pines	.0	.0	2.7	-	5.1	7.9	12.9	.0	52.8	-	10.9	76.7
Eastern hemlock	34.6	-	-	-	104.5	139.1	147.3	-	-	-	161.9	309.3
Other softwoods	.0	-	-	-	.0	.0	20.7	-	-	-	3.9	24.6
Total softwoods	39.4	.0	16.6	1.8	109.6	167.5	187.5	21.0	290.1	5.0	178.3	682.0
Red maple	17.4	77.6	254.6	220.1	228.8	798.4	17.4	86.9	531.6	414.3	264.5	1,314.7
Sugar maple	56.1	131.6	179.0	115.9	107.3	589.8	56.1	156.1	352.7	198.0	119.7	882.6
Yellow birch	.0	.0	11.6	.0	5.4	17.1	.0	.0	34.2	6.4	8.8	49.4
Sweet birch	.0	.0	17.9	11.1	1.1	30.1	.0	1.5	38.5	23.3	4.6	67.9
Hickory	19.1	46.6	50.0	30.6	14.6	160.8	19.1	72.5	177.4	80.0	14.6	363.6
Beech	12.1	53.8	97.0	98.8	101.6	363.3	12.1	61.3	143.2	148.6	120.4	485.7
White ash	53.0	59.4	63.3	32.7	34.0	242.5	53.0	76.4	167.9	71.3	45.0	413.7
Black walnut	.0	10.3	16.8	15.6	7.6	50.2	.0	13.7	42.8	34.6	10.8	102.0
Yellow-poplar	166.4	112.0	105.3	77.6	61.0	522.2	166.4	142.7	243.0	166.8	69.1	787.9
Blackgum	2.4	5.4	17.7	4.9	8.2	38.6	2.4	7.4	27.9	13.0	10.9	61.6
Aspen	.0	.0	9.3	2.0	2.3	13.5	.0	.0	40.7	51.1	2.3	94.0
Black cherry	71.2	216.7	210.6	77.5	187.4	763.4	71.2	303.7	733.2	188.2	256.5	1,552.7
Chestnut oak	2.8	16.8	1.0	5.7	1.2	27.7	2.8	16.8	28.7	9.4	1.2	58.9
Northern red oak	218.9	332.5	200.1	38.4	84.1	873.9	218.9	382.2	369.6	84.3	90.2	1,145.1
Select white oaks	53.1	118.2	107.5	74.5	41.0	394.3	53.1	137.1	230.1	120.5	44.3	585.1
Other oaks	108.5	145.7	154.1	79.7	30.9	518.9	108.5	177.4	218.2	131.1	32.1	667.4
Black locust	.0	1.8	2.7	11.9	29.0	45.5	.0	1.8	16.3	23.5	37.2	78.9
Basswood	6.3	10.6	20.4	4.4	6.6	48.3	6.3	23.3	49.4	7.1	7.8	93.9
Other hardwoods	39.4	62.2	88.9	80.8	38.2	309.4	39.4	69.5	232.9	149.4	45.7	536.9
Total hardwoods	826.8	1,401.3	1,607.5	982.0	990.1	5,807.7	826.8	1,730.3	3,678.2	1,920.8	1,185.7	9,341.9
All species	866.2	1,401.3	1,624.2	983.8	1,099.8	5,975.3	1,014.3	1,751.3	3,968.4	1,925.9	1,364.1	10,023.9

Table 53.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Western Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	771	1,804	207	489	12,167	454
Eastern hemlock	208	3,131	700	700	10,231	2,237
Other softwoods	1,196	1,005	2,776	1,666	4,601	2,173
Total softwoods	2,175	5,940	3,684	2,856	26,999	4,864
Red maple	1,453	19,171	3,821	3,181	54,759	13,855
Sugar maple	1,443	9,396	4,532	4,151	32,595	13,998
Yellow birch	236	712	324	363	2,957	416
Sweet birch	713	754	231	1,409	83	348
Hickory	551	3,722	1,493	2,231	15,087	5,263
Beech	153	4,898	911	503	20,696	3,320
White ash	1,228	6,298	2,220	2,741	19,449	7,061
Yellow-poplar	65	8,573	5,253	0	35,178	27,169
Blackgum	17	663	53	0	1,816	0
Black cherry	2,639	24,746	9,453	5,165	82,179	27,423
Chestnut oak	272	166	573	635	2,277	1,515
Northern red oak	1,262	9,583	5,649	3,035	48,234	23,743
Select white oaks	706	3,446	3,045	1,623	19,844	14,050
Other oaks	1,007	4,621	3,574	2,949	23,323	15,470
Basswood	60	1,343	465	0	5,350	591
Other hardwoods	3,942	13,773	2,722	5,860	35,155	6,681
Total hardwoods	15,747	111,869	44,320	33,848	398,983	160,904
All species	17,922	117,809	48,004	36,704	425,982	165,768

[a] Mortality is a component of net growth.

SOUTHWESTERN UNIT TABLES

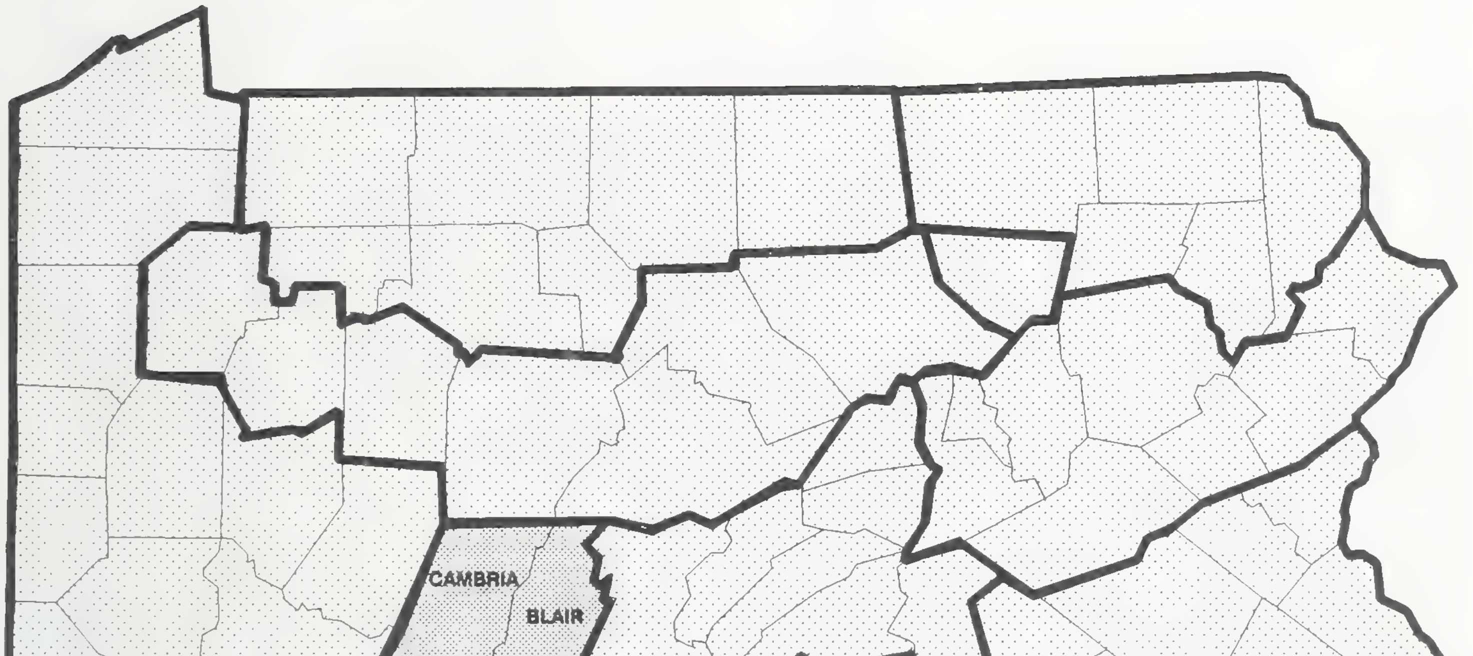

Table 54.--Area of timberland by forest type, forest-type group, and stand-size class, Southwestern Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	5.2	.0	.0	.0	5.2	100.0
Hemlock	27.9	5.6	.0	.0	33.5	38.6
Scotch pine	.0	5.3	.0	.0	5.3	100.0
White/red pine group	33.1	10.9	.0	.0	44.0	33.9
Norway spruce	.0	5.8	5.8	.0	11.6	61.8
Spruce/fir group	.0	5.8	5.8	.0	11.6	61.8
Virginia pine	15.7	5.2	5.0	.0	26.0	36.6
Loblolly/shortleaf group	15.7	5.2	5.0	.0	26.0	36.6
Wh. pine/no. red oak/wh. ash	25.7	6.0	.0	.0	31.7	40.1
Virginia pine/oak	.0	4.5	5.0	.0	9.5	70.8
Other oak/pine	.0	.0	5.8	.0	5.8	100.0
Oak/pine group	25.7	10.5	10.8	.0	47.0	32.6
Chestnut oak	21.7	40.3	5.8	.0	67.8	28.3
White oak/red oak/hickory	39.4	27.4	5.0	.0	71.8	27.5
White oak	16.7	5.8	5.5	.0	28.0	44.7
Northern red oak	66.1	26.8	15.5	.0	108.4	21.2
Y. poplar/wh. oak/no. red oak	11.9	16.8	.0	.0	28.7	43.9
Black locust	.0	5.0	.0	10.8	15.7	57.8
Yellow-poplar	17.2	5.2	5.2	.0	27.7	42.8
Hawthorn/reverting field	.0	.0	52.9	.0	52.9	31.3
Scarlet oak	.0	.0	5.5	.0	5.5	100.0
Red maple/central hardwoods	22.5	32.8	16.2	.0	71.5	27.6
Mixed central hardwoods	249.0	148.3	82.3	.0	479.6	8.9
Oak/hickory group	444.4	308.5	193.9	10.8	957.6	5.0
Black ash/Amer. elm/red maple	10.9	.0	.0	.0	10.9	70.7
Red maple(upland)	.0	.0	5.6	.0	5.6	100.0
River birch/sycamore	11.1	.0	.0	.0	11.1	70.8
Cottonwood	.0	6.3	.0	.0	6.3	100.0
Sycamore/pecan/American elm	5.2	.0	.0	.0	5.2	100.0
Elm/ash/red maple group	27.2	6.3	5.6	.0	39.0	37.3
Sugar maple/beech/yellow birch	105.7	40.2	15.7	.0	161.6	17.4
Black cherry	60.0	63.7	27.3	.0	151.0	18.0
Red maple/northern hardwoods	22.8	28.4	15.2	.0	66.5	28.4
Pin cherry/reverting field	.0	.0	11.5	.0	11.5	71.0
Mixed northern hardwoods	49.5	28.9	26.8	.0	105.1	22.5
Northern hardwoods group	238.0	161.2	96.5	.0	495.7	8.9
Aspen	.0	.0	4.8	.0	4.8	100.0
Aspen/birch group	.0	.0	4.8	.0	4.8	100.0
All forest types	784.1	508.3	322.4	10.8	1,625.6	1.8
SE	5.5	8.6	11.0	70.7	1.8	

Table 55.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Southwestern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	1,886	974	1,001	757	493	338	225	75
Virginia pine	7,341	3,926	1,416	1,179	871	298	69	0
Other yellow pines	268	903	413	297	183	63	120	0
Eastern hemlock	10,969	6,623	2,449	1,443	815	675	698	219
Other softwoods	1,269	975	493	309	119	67	18	0
Total softwoods	21,734	13,402	5,772	3,987	2,482	1,441	1,130	294
Red maple	104,246	43,341	18,113	9,964	5,039	3,240	2,033	1,045
Sugar maple	41,929	14,830	5,316	4,279	2,652	1,418	931	653
Yellow birch	704	1,049	496	223	282	141	20	0
Sweet birch	44,164	6,253	3,798	2,712	1,116	489	311	67
Hickory	9,230	4,180	3,332	2,396	1,276	707	377	274
Beech	20,688	2,989	943	783	449	498	236	263
White ash	8,861	4,643	1,079	1,212	866	635	312	157
Black walnut	0	348	44	0	41	19	21	13
Yellow-poplar	2,591	1,922	1,011	1,141	780	967	543	476
Blackgum	25,623	7,546	1,610	681	196	93	81	35
Aspen	5,261	2,318	681	446	364	58	41	15
Black cherry	68,513	17,504	8,911	5,857	5,165	2,032	1,798	942
Chestnut oak	8,415	2,737	4,179	5,073	3,222	1,609	1,327	731
Northern red oak	20,320	8,624	5,749	5,778	4,379	3,519	2,125	1,459
Select white oaks	5,396	2,953	1,363	1,694	1,564	909	735	296
Other oaks	5,627	3,976	1,680	1,117	1,123	790	156	201
Black locust	14,518	3,348	2,809	1,767	1,339	457	289	93
Basswood	2,348	331	1,838	1,230	591	281	339	106
Other hardwoods	33,646	5,864	3,005	914	867	569	432	176
Total hardwoods	422,080	134,757	65,957	47,268	31,313	18,431	12,108	7,002
All species	443,814	148,159	71,728	51,255	33,795	19,872	13,239	7,296
SE	7.2	6.8	5.6	5.3	4.9	4.7	5.2	6.6

Table 55.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	53	40	98	7	3,088	5,948	27.0
Virginia pine	0	0	0	0	3,833	15,101	37.2
Other yellow pines	0	9	0	0	1,085	2,257	53.8
Eastern hemlock	248	63	69	0	6,678	24,271	31.7
Other softwoods	0	0	0	0	1,007	3,251	51.5
Total softwoods	301	112	167	7	15,693	50,829	19.4
Red maple	502	223	340	18	40,517	188,104	9.8
Sugar maple	194	52	77	18	15,591	72,350	14.3
Yellow birch	0	0	0	0	1,163	2,915	49.4
Sweet birch	25	30	17	8	8,573	58,989	17.6
Hickory	51	32	8	5	8,459	21,870	19.7
Beech	77	42	54	9	3,354	27,031	22.8
White ash	55	51	65	5	4,436	17,941	17.6
Black walnut	0	9	0	0	147	495	79.6
Yellow-poplar	188	107	110	5	5,329	9,842	26.0
Blackgum	13	26	0	0	2,733	35,903	23.1
Aspen	0	0	0	0	1,606	9,185	64.9
Black cherry	376	260	243	0	25,583	111,600	14.3
Chestnut oak	406	117	136	0	16,801	27,953	16.2
Northern red oak	956	488	578	141	25,173	54,118	11.9
Select white oaks	176	167	98	22	7,024	15,373	19.0
Other oaks	185	88	91	4	5,437	15,040	22.3
Black locust	37	0	12	0	6,804	24,670	21.4
Basswood	96	21	9	0	4,511	7,190	37.1
Other hardwoods	199	117	81	32	6,392	45,901	16.8
Total hardwoods	3,536	1,830	1,919	269	189,633	746,470	4.8
All species	3,837	1,942	2,087	275	205,326	797,299	4.7
SE	7.7	10.1	10.4	17.4	3.6	4.7	

Table 56.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Southwestern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	SE
White and red pine	148	19	43	209	159	54	0	213	422	39.2
Virginia pine	112	0	0	112	39	0	0	39	151	41.7
Other yellow pines	203	0	0	203	215	0	0	215	419	51.6
Eastern hemlock	37	0	0	37	139	50	35	224	262	56.5
Total softwoods	501	19	43	562	552	104	35	692	1,254	23.4
Red maple	739	66	16	821	1,956	172	149	2,278	3,099	19.4
Sugar maple	253	17	0	269	327	247	35	609	878	41.3
Yellow birch	295	64	0	359	200	29	0	229	589	42.2
Sweet birch	610	83	15	709	493	64	58	614	1,323	30.9
Hickory	292	79	59	431	185	83	53	321	752	31.0
Beech	131	0	0	131	180	0	14	194	326	53.3
White ash	302	42	22	366	24	0	12	35	401	52.6
Black walnut	159	0	0	159	0	0	0	0	159	100.0
Yellow-poplar	0	0	0	0	27	26	0	53	53	70.7
Aspen	0	21	0	21	49	0	0	49	70	76.4
Black cherry	862	47	40	949	1,515	107	89	1,711	2,661	20.3
Chestnut oak	3,611	829	505	4,945	3,697	360	184	4,241	9,186	16.3
Northern red oak	2,689	905	626	4,221	1,126	150	130	1,406	5,627	18.6
Select white oaks	1,157	93	42	1,293	1,397	121	0	1,517	2,810	21.6
Other oaks	1,047	297	177	1,520	353	71	43	467	1,988	21.5
Black locust	2,553	230	25	2,809	2,944	88	25	3,057	5,866	17.3
Basswood	0	21	0	21	56	0	22	79	100	61.6
Other commercial hardwoods	654	89	15	759	298	55	19	372	1,130	27.4
Noncommercial hardwoods	1,811	114	8	1,933	3,537	98	100	3,735	5,668	16.1
Total hardwoods	17,166	2,999	1,551	21,717	18,365	1,671	934	20,970	42,687	7.4
All species	17,667	3,018	1,594	22,279	18,918	1,775	969	21,662	43,941	7.2
SE	10.2	12.4	16.8	9.0	8.9	15.0	14.4	8.2	7.2	

Table 57.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Southwestern Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern redcedar	6	0	0	0	6	100.0
Spruce species	0	2	1	0	3	45.9
Pitch pine	0	1	0	0	1	100.0
Eastern white pine	12	0	1	0	14	42.6
Scotch pine	0	1	0	0	1	71.0
Virginia pine	23	4	7	0	34	62.9
Eastern hemlock	19	9	0	0	28	33.2
Boxelder	10	0	1	0	11	74.6
Striped maple	134	41	84	0	260	20.1
Red maple	480	363	322	0	1,164	13.6
Silver maple	0	0	1	0	1	79.3
Sugar maple	219	110	47	0	375	20.7
Ailanthus species	0	0	0	0	0	100.0
Alder species	8	0	1	0	9	89.4
Hercules club	7	7	18	0	31	32.3
Serviceberry	69	93	32	0	195	26.0
Azalea species	1	0	3	0	4	76.7
Barberry	20	1	0	0	21	69.5
Yellow birch	1	5	0	0	5	87.4
Sweet birch	171	106	96	0	373	15.6
Gray birch	0	0	0	0	0	100.0
American hornbeam	36	14	3	0	53	35.3
Hickory species	19	22	7	0	48	20.6
Bitternut hickory	3	0	0	0	3	52.1
Pignut hickory	4	2	1	0	8	53.0
Shagbark hickory	5	0	1	0	6	50.7
Mockernut hickory	9	8	1	0	19	60.5
American chestnut	15	6	1	0	22	45.7
Flowering dogwood	45	25	13	0	83	24.6
Alternate-leaved dogwood	29	20	0	0	49	66.6
Round-leaved dogwood	7	0	0	0	7	100.0
Panicled dogwood	10	0	54	0	64	55.4
Hawthorn species	81	133	131	0	346	18.5
American hazelnut	0	3	0	0	3	100.0
American beech	166	35	43	0	243	24.3
Russian olive	25	3	1	0	30	56.5
White ash	163	96	70	0	329	21.3
Green ash	10	11	2	0	23	61.8
Huckleberry	0	3	0	0	3	100.0
Honeylocust	0	0	0	0	0	100.0
Witch-hazel	190	151	149	0	491	15.3
Large-leaved holly	1	1	0	0	2	71.0
Black walnut	0	0	0	0	0	100.0
Sheep laurel	15	0	0	0	15	100.0
Mountain laurel	183	226	52	0	461	19.1
Common spicebush	236	75	25	0	336	23.2
Yellow-poplar	17	3	12	0	32	50.7
Bush honeysuckle	26	8	2	0	36	72.3
Cucumbertree	30	6	6	0	42	35.3
Apple species	1	0	1	0	2	71.0
Black tupelo	39	50	34	0	123	19.4
Eastern hophornbeam	40	24	7	0	71	31.1
Ninebark	1	0	0	0	1	100.0
American sycamore	0	0	0	0	0	100.0
Eastern cottonwood	0	4	0	0	4	100.0
Bigtooth aspen	2	3	8	0	13	40.8
Quaking aspen	1	0	55	0	55	71.0
Cherry species	3	1	1	0	5	58.8
Pin cherry	2	1	11	0	14	48.7
Black cherry	792	547	391	0	1,731	11.9
Chokecherry	127	14	0	0	141	39.4

Table 57.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White oak	80	91	10	0	181	40.2
Scarlet oak	6	5	5	0	16	47.4
Scrub, bear oak	3	1	5	0	9	63.5
Shingle oak	0	0	6	0	6	100.0
Chestnut oak	56	94	49	0	199	26.2
Northern red oak	102	67	43	0	212	16.5
Black oak	48	23	9	0	80	31.5
Buckthorn species	1	0	0	0	1	100.0
Rhododendron species	55	34	0	0	89	56.5
Winged sumac	0	0	1	0	1	100.0
Smooth sumac	1	0	0	0	1	100.0
Staghorn sumac	0	1	0	0	1	100.0
Currant species	2	2	0	0	5	60.4
Black locust	21	12	31	0	64	24.7
Rose species	188	10	62	0	260	45.9
Rubus species	776	909	1,180	2	2,866	12.2
American elderberry	7	2	3	0	12	37.9
Red-berried alder	8	0	0	0	8	64.2
Sassafras	244	382	125	0	751	20.2
Spirea species	21	2	5	0	29	77.2
American basswood	14	2	1	0	17	35.2
Elm species	1	0	0	0	1	100.0
American elm	11	13	6	0	31	37.7
Slippery elm	30	6	3	0	39	47.6
Blueberry	915	997	484	0	2,395	19.2
Viburnum species	12	41	2	0	56	71.8
Maple-leaved viburnum	119	45	43	0	207	25.8
Hobblebush viburnum	2	0	0	0	2	100.0
Wild raisin	0	97	0	0	97	100.0
Arrowwood	0	21	19	0	41	64.2
Blackhaw	2	2	0	0	5	60.4
Unknown deciduous shrub	1	7	7	0	15	38.5
Unknown evergreen shrub	1	0	0	0	1	100.0
Unknown tree	8	0	0	0	8	73.5
All species	6,255	5,109	3,795	2	15,161	5.5
SE	10.4	12.0	15.6	100.0	5.5	

Table 58.--Net dry weight[a] of all trees on timberland by class of material and species group, Southwestern Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	1,687	26,741	28,428	4.5
Upper stem	210	6,106	6,317	4.2
Total sawtimber trees	1,897	32,847	34,744	4.5
Poletimber trees	616	18,473	19,088	4.2
All growing stock	2,513	51,320	53,833	3.3
Rough cull trees[b]	116	3,278	3,394	9.0
Rotten cull trees[b]	13	1,004	1,017	10.5
Salvable dead trees[c]	43	1,983	2,025	13.4
Saplings[c]	475	7,833	8,308	5.6
Tops - growing stock	889	18,142	19,031	3.2
Tops - rough and rotten	48	1,571	1,620	7.5
All nongrowing stock	1,583	33,812	35,395	2.7
All classes	4,096	85,132	89,228	2.8
SE	13.5	2.9	2.8	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 59.--Net volume of all trees on timberland by class of timber and species group, Southwestern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	44.5	49.5	425.1	515.6	1,034.7	4.5
Upper stem	5.7	6.0	99.8	120.4	231.9	4.2
Total sawtimber trees	50.2	55.5	524.9	636.0	1,266.6	4.4
Poletimber trees	19.4	16.0	374.9	409.4	819.7	4.5
Total growing-stock trees	69.6	71.5	899.8	1,045.4	2,086.3	3.3
Rough trees:						
Sawtimber size	.5	1.8	25.6	16.6	44.4	11.7
Poletimber size	.2	.2	29.0	11.8	41.3	12.4
Total rough trees	.7	2.0	54.6	28.4	85.8	8.9
Rotten trees:						
Sawtimber size	.2	.1	6.7	7.9	14.9	14.2
Poletimber size	.0	.1	2.9	3.0	5.9	16.8
Total rotten trees	.2	.2	9.6	10.9	20.9	11.5
Salvable dead[a] trees:						
Sawtimber size	.7	.4	7.3	15.7	24.1	17.5
Poletimber size	.4	.0	5.8	13.1	19.3	16.8
Total salvable dead trees	1.1	.4	13.2	28.7	43.4	13.5
All classes	71.6	74.1	977.2	1,113.5	2,236.4	3.2
SE	21.8	19.7	5.2	4.4	3.2	

[a] Includes noncommercial species.

Table 60.--Net volume of growing-stock trees on timberland by species and diameter class, Southwestern Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	7.7	4.1	3.7	3.5	2.1	.0	1.1	.0	17.7	.0	39.9
Eastern hemlock	3.4	6.7	7.0	8.5	6.4	7.0	1.9	2.1	.4	.0	43.4
Other softwoods	7.4	9.8	5.7	2.8	5.1	.0	.0	1.5	.0	.0	32.4
Total softwoods	18.5	20.6	16.4	14.8	13.6	7.0	3.0	3.6	18.1	.0	115.7
Red maple	34.4	48.8	57.8	54.9	29.0	14.9	8.6	6.7	18.0	.0	273.1
Sugar maple	13.7	21.7	24.9	17.1	16.9	8.7	6.9	5.0	9.4	.5	124.8
Yellow birch	.3	1.7	3.6	.5	.0	.0	.0	.0	.0	.0	6.1
Sweet birch	10.9	11.1	7.1	5.8	3.4	1.6	1.2	.6	1.2	.0	42.8
Hickory	5.7	13.6	14.7	10.0	12.3	7.4	2.9	.0	2.3	.0	69.1
Beech	1.7	7.4	5.7	8.9	7.6	2.1	3.2	3.0	4.4	1.0	44.9
White ash	5.8	6.6	8.5	2.3	4.6	3.6	2.8	1.0	2.9	1.0	39.0
Yellow-poplar	2.5	4.1	11.0	6.6	9.1	6.7	2.7	1.2	4.0	.0	47.9
Blackgum	1.3	3.2	1.9	1.7	.7	.0	.0	.0	.0	.0	8.8
Black cherry	20.6	36.2	32.3	35.9	28.5	12.7	18.0	5.5	4.4	.0	194.0
Chestnut oak	24.9	43.2	55.9	40.9	23.3	21.3	18.9	8.6	9.6	3.7	250.4
Northern red oak	17.4	44.8	58.5	58.8	52.7	52.9	32.7	23.1	33.4	7.9	382.3
Select white oaks	7.5	18.9	20.3	15.8	10.9	12.4	7.0	1.0	10.9	.0	104.8
Other oaks	6.0	13.7	16.6	9.2	18.8	4.5	10.4	3.3	10.3	1.9	94.6
Basswood	3.5	2.7	4.6	5.6	4.5	3.4	.4	.9	.0	.0	25.6
Other hardwoods	7.5	15.7	20.5	9.3	7.0	11.5	2.6	2.3	7.8	.6	84.7
Total hardwoods	163.5	293.4	343.9	283.3	229.2	163.8	118.3	62.3	118.5	16.6	1,792.9
All species	182.1	314.0	360.4	298.0	242.8	170.8	121.3	65.9	136.6	16.6	1,908.5

Table 61.--Net volume of growing-stock trees on timberland by species and diameter class, Southwestern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	2.8	4.7	4.6	5.4	4.9	2.2	2.7	2.0	8.6	1.3	39.3	31.9
Virginia pine	3.4	6.6	7.9	3.8	1.4	.0	.0	.0	.0	.0	23.0	37.1
Other yellow pines	.6	1.3	1.5	1.0	2.5	.0	.0	.4	.0	.0	7.3	39.9
Eastern hemlock	5.5	7.0	7.9	9.2	13.5	5.9	10.1	2.6	3.8	.0	65.5	21.4
Other softwoods	1.4	2.1	1.2	.9	.3	.0	.0	.0	.0	.0	5.9	49.8
Total softwoods	13.7	21.7	23.1	20.4	22.5	8.1	12.8	5.0	12.4	1.3	141.1	14.1
Red maple	42.8	56.1	54.2	50.7	46.0	31.8	19.1	11.3	22.4	2.2	336.6	7.6
Sugar maple	15.2	27.1	26.6	22.5	20.2	19.3	7.4	2.4	5.3	1.9	147.8	12.8
Yellow birch	1.4	1.4	2.8	2.1	.4	.0	.0	.0	.0	.0	8.0	38.1
Sweet birch	10.9	17.0	10.9	7.5	5.7	1.7	1.0	1.5	1.2	.6	57.9	18.3
Hickory	8.9	15.6	14.7	11.9	8.7	9.2	1.9	1.4	.6	.5	73.4	19.7
Beech	2.3	4.4	4.2	9.4	5.7	8.4	2.8	2.2	4.5	1.0	44.9	21.3
White ash	2.7	6.7	8.9	9.8	7.2	4.9	1.9	2.7	4.2	.5	49.6	16.4
Black walnut	.1	.0	.2	.3	.5	.4	.0	.5	.0	.0	2.1	53.8
Yellow-poplar	3.5	9.2	10.4	19.3	15.7	17.9	9.6	7.1	11.0	.8	104.6	20.4
Blackgum	3.6	3.3	1.7	1.1	1.7	1.0	.3	.9	.0	.0	13.6	20.3
Aspen	2.3	3.0	3.9	1.0	.9	.4	.0	.0	.0	.0	11.5	93.5
Black cherry	27.0	38.4	56.1	34.4	44.6	29.5	14.8	13.4	16.5	.0	274.6	9.8
Chestnut oak	10.3	27.4	30.4	21.0	25.1	17.8	13.1	4.4	6.4	.0	156.0	10.8
Northern red oak	16.9	35.4	46.4	55.4	46.8	44.8	38.5	24.0	38.2	17.2	363.5	9.0
Select white oaks	3.5	9.1	15.9	12.6	15.3	8.5	6.5	7.7	6.3	2.2	87.7	13.2
Other oaks	4.9	6.7	11.8	12.7	3.5	5.9	6.8	3.7	5.5	.8	62.3	14.5
Black locust	6.5	8.8	11.3	5.7	5.0	2.4	1.0	.0	.7	.0	41.4	15.7
Basswood	4.6	8.8	7.0	4.5	9.5	4.0	3.6	.9	.6	.0	43.5	32.7
Other hardwoods	7.4	5.4	8.4	8.3	8.5	4.4	7.1	5.7	6.6	4.4	66.3	20.5
Total hardwoods	175.0	283.5	325.9	290.5	270.9	212.2	135.2	89.8	130.1	32.3	1,945.3	3.5
All species	188.6	305.2	349.0	310.9	293.4	220.3	148.0	94.8	142.5	33.5	2,086.3	3.3
SE	5.9	5.6	5.0	5.0	5.4	6.7	7.9	10.3	11.5	18.2	3.3	

Table 62.--Net volume of sawtimber trees on timberland by species and diameter class, Southwestern Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	9.3	13.5	7.8	.0	4.4	.0	89.2	.0	124.2
Eastern hemlock	20.9	31.8	27.1	30.3	8.7	9.6	1.3	.0	129.7
Other softwoods	20.3	11.8	25.9	.0	.0	7.6	.0	.0	65.5
Total softwoods	50.5	57.1	60.8	30.3	13.1	17.2	90.5	.0	319.5
Red maple	-	192.0	118.6	61.5	40.6	31.7	93.1	.0	537.5
Sugar maple	-	61.4	69.1	37.4	33.8	24.3	48.4	3.6	277.9
Yellow birch	-	.3	.0	.0	.0	.0	.0	.0	.3
Sweet birch	-	28.2	15.7	9.3	6.5	3.1	5.3	.0	68.1
Hickory	-	27.7	40.0	28.2	11.3	.0	10.2	.0	117.4
Beech	-	28.1	27.7	8.5	13.0	13.8	19.1	5.4	115.5
White ash	-	8.9	20.4	15.8	13.4	4.1	14.5	7.3	84.3
Yellow-poplar	-	23.7	39.4	30.4	13.1	6.3	21.1	.0	133.9
Blackgum	-	11.2	5.4	.0	.0	.0	.0	.0	16.7
Black cherry	-	109.5	105.4	51.6	79.1	25.0	22.5	.0	393.0
Chestnut oak	-	143.8	89.2	86.7	84.2	38.9	50.1	23.0	515.8
Northern red oak	-	190.8	199.8	213.3	137.7	110.1	168.7	39.3	1,059.6
Select white oaks	-	61.5	49.4	56.5	33.7	4.6	61.7	.0	267.4
Other oaks	-	31.3	75.6	19.1	49.0	14.4	54.8	11.1	255.3
Basswood	-	20.0	19.1	14.6	1.8	4.2	.0	.0	59.8
Other hardwoods	-	33.8	28.8	50.3	10.7	11.4	41.9	3.3	180.1
Total hardwoods	-	971.4	903.7	683.2	527.7	291.8	611.2	93.0	4,081.9
All species	50.5	1,028.5	964.5	713.5	540.8	309.0	701.6	93.0	4,401.4

Table 63.--Net volume of sawtimber trees on timberland by species and diameter class, Southwestern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	13.8	21.2	21.9	10.4	13.8	8.5	48.8	7.6	146.1	39.2
Virginia pine	25.3	13.4	5.3	.0	.0	.0	.0	.0	44.0	39.4
Other yellow pines	4.4	3.8	9.7	.0	.0	2.2	.0	.0	20.2	45.6
Eastern hemlock	23.6	33.3	53.1	24.5	42.7	10.9	15.7	.0	203.9	22.9
Other softwoods	3.7	3.1	1.1	.0	.0	.0	.0	.0	7.9	58.8
Total softwoods	70.8	74.9	91.1	35.0	56.5	21.7	64.5	7.6	422.0	17.7
Red maple	-	184.3	180.8	133.3	84.1	54.6	112.9	13.1	763.1	11.1
Sugar maple	-	83.6	81.9	84.8	35.7	10.4	22.9	11.4	330.6	15.3
Yellow birch	-	9.8	1.7	.0	.0	.0	.0	.0	11.5	63.9
Sweet birch	-	29.6	24.3	8.5	3.8	5.9	4.7	3.7	80.4	23.9
Hickory	-	43.0	33.2	40.4	7.7	7.1	3.5	3.8	138.6	20.8
Beech	-	34.8	25.2	36.8	12.5	11.0	21.8	6.7	148.9	24.1
White ash	-	35.9	28.1	21.3	7.1	12.7	19.1	2.0	126.2	18.2
Black walnut	-	1.3	2.2	1.7	.0	2.0	.0	.0	7.2	63.6
Yellow-poplar	-	78.4	67.9	83.4	46.3	35.1	60.8	4.2	376.1	20.9
Blackgum	-	3.4	6.9	4.1	1.4	4.5	.0	.0	20.3	36.5
Aspen	-	4.0	4.1	1.8	.0	.0	.0	.0	9.9	100.0
Black cherry	-	125.6	182.5	127.5	68.7	67.2	85.4	.0	656.8	12.6
Chestnut oak	-	76.1	94.3	67.9	52.6	18.4	29.1	.0	338.4	11.7
Northern red oak	-	203.9	185.9	189.0	168.6	109.0	188.4	92.9	1,137.7	10.0
Select white oaks	-	48.9	63.5	37.8	29.6	36.3	30.9	12.6	259.6	14.8
Other oaks	-	45.2	13.5	25.7	30.3	16.8	25.7	4.5	161.7	17.8
Black locust	-	18.2	20.5	10.9	4.9	.0	3.7	.0	58.3	20.8
Basswood	-	17.9	42.4	19.1	18.2	3.6	3.2	.0	104.5	34.1
Other hardwoods	-	30.2	37.0	19.0	32.4	27.9	34.9	25.2	206.5	25.1
Total hardwoods	-	1,074.1	1,096.0	913.0	603.9	422.6	647.0	179.9	4,936.4	4.9
All species	70.8	1,148.9	1,187.1	948.0	660.4	444.3	711.4	187.5	5,358.4	4.7
SE	21.7	5.0	5.5	6.9	8.0	10.5	11.8	18.4	4.7	

Table 64.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Southwestern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	19.4	17.6	33.7	18.5	89.2	20.1	28.2	61.6	36.2	146.1
Virginia pine	.0	.0	.0	-	.0	.0	.0	44.0	-	44.0
Other yellow pines	1.2	.2	.9	-	2.2	2.0	.7	17.4	-	20.2
Eastern hemlock	93.8	-	-	-	93.8	203.9	-	-	-	203.9
Other softwoods	.0	-	-	-	.0	7.9	-	-	-	7.9
Total softwoods	114.4	17.8	34.6	18.5	185.2	233.9	28.9	123.0	36.2	422.0
Red maple	9.2	35.9	192.0	160.8	397.9	9.2	45.6	350.4	357.9	763.1
Sugar maple	24.5	12.8	62.1	65.7	165.1	32.3	20.2	129.8	148.2	330.6
Yellow birch	.0	.0	.0	.0	.0	.1	.1	8.7	2.4	11.5
Sweet birch	1.4	4.3	14.3	6.4	26.5	1.7	5.8	33.8	39.2	80.4
Hickory	3.6	12.6	19.9	26.2	62.4	3.6	23.2	57.7	54.0	138.6
Beech	.4	3.0	41.1	44.3	88.8	.5	3.0	56.8	88.5	148.9
White ash	5.3	15.3	29.7	12.0	62.3	7.1	23.7	62.9	32.6	126.2
Black walnut	1.3	.4	1.7	.4	3.8	1.3	.4	3.6	1.9	7.2
Yellow-poplar	28.5	45.2	84.6	71.5	229.8	32.0	56.2	145.0	142.8	376.1
Blackgum	.0	.0	6.5	3.5	10.0	.0	1.1	10.8	8.4	20.3
Aspen	.0	.0	.0	1.8	1.8	.0	.0	.2	9.7	9.9
Black cherry	21.2	47.5	213.9	66.2	348.7	24.0	72.4	394.6	165.8	656.8
Chestnut oak	16.8	39.5	56.8	54.9	168.1	16.8	47.5	156.5	117.6	338.4
Northern red oak	158.6	172.4	255.2	161.7	747.9	163.8	200.4	429.7	343.9	1,137.7
Select white oaks	10.6	31.7	49.3	55.6	147.3	10.6	36.4	102.0	110.6	259.6
Other oaks	7.1	19.2	34.7	42.1	103.0	7.1	23.8	53.9	76.9	161.7
Black locust	.0	1.8	12.1	5.6	19.6	.0	1.8	41.6	14.9	58.3
Basswood	4.6	11.8	23.1	4.8	44.2	5.9	20.6	58.7	19.3	104.5
Other hardwoods	16.0	22.0	64.0	37.4	139.3	16.0	28.6	92.8	69.2	206.5
Total hardwoods	309.1	475.4	1,161.1	820.8	2,766.4	332.1	611.1	2,189.5	1,803.8	4,936.4
Percent of hardwood in each grade	11	17	42	30	100	7	13	44	36	100

Table 65.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Southwestern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	51.0	16.6	8.9	.0	12.7	89.2	52.9	36.4	29.8	8.8	18.1	146.1
Virginia pine	.0	.0	.0	-	.0	.0	.0	.0	42.5	-	1.4	44.0
Other yellow pines	2.2	.0	.0	-	.0	2.2	3.8	1.0	14.2	-	1.1	20.2
Eastern hemlock	49.6	-	-	-	44.3	93.8	115.5	-	-	-	88.4	203.9
Other softwoods	.0	-	-	-	.0	.0	4.2	-	-	-	3.7	7.9
Total softwoods	102.8	16.6	8.9	.0	57.0	185.2	176.5	37.4	86.6	8.8	112.7	422.0
Red maple	9.1	54.7	115.5	141.6	77.0	397.9	9.1	69.1	238.0	321.8	125.0	763.1
Sugar maple	8.6	11.4	50.9	54.0	40.2	165.1	8.6	18.2	118.4	128.9	56.5	330.6
Yellow birch	.0	.0	.0	.0	.0	.0	.0	.0	7.1	1.9	2.5	11.5
Sweet birch	1.9	5.3	7.7	5.7	5.9	26.5	1.9	6.9	23.0	37.3	11.4	80.4
Hickory	6.2	13.7	15.9	20.5	6.0	62.4	6.2	15.2	60.2	38.6	18.4	138.6
Beech	.0	4.9	17.2	38.1	28.5	88.8	.0	4.9	30.0	81.9	31.9	148.9
White ash	8.4	9.4	25.3	5.5	13.5	62.3	8.4	16.2	59.8	20.0	21.7	126.2
Black walnut	2.0	.0	1.7	.0	.0	3.8	2.0	.0	3.9	1.3	.0	7.2
Yellow-poplar	50.3	66.2	62.3	46.2	4.8	229.8	50.3	91.4	126.7	102.9	4.8	376.1
Blackgum	.0	.0	2.6	3.2	4.2	10.0	.0	1.7	4.9	7.7	6.0	20.3
Aspen	.0	.0	.0	1.8	.0	1.8	.0	.0	.0	9.9	.0	9.9
Black cherry	26.9	78.7	93.6	38.6	111.0	348.7	26.9	120.2	255.3	110.8	143.6	656.8
Chestnut oak	21.4	53.7	47.8	23.8	21.4	168.1	21.4	63.2	163.5	58.5	31.8	338.4
Northern red oak	199.8	203.4	182.2	96.2	66.4	747.9	199.8	244.7	361.3	256.2	75.7	1,137.7
Select white oaks	13.8	47.9	45.4	17.8	22.3	147.3	13.8	55.1	108.8	55.9	26.0	259.6
Other oaks	10.0	29.7	33.1	26.0	4.3	103.0	10.0	37.0	55.1	50.9	8.8	161.7
Black locust	.0	2.7	8.2	4.2	4.4	19.6	.0	2.7	28.5	10.3	16.7	58.3
Basswood	9.1	15.6	8.6	2.9	7.9	44.2	9.1	31.6	36.8	14.6	12.4	104.5
Other hardwoods	25.7	23.5	28.0	29.7	32.3	139.3	25.7	32.9	49.4	57.3	41.1	206.5
Total hardwoods	393.3	620.9	746.1	556.0	450.1	2,766.4	393.3	811.1	1,730.9	1,366.8	634.3	4,936.4
All species	496.1	637.5	755.0	556.0	507.1	2,951.6	569.8	848.5	1,817.5	1,375.6	747.1	5,358.4

Table 66.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Southwestern Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	146	318	370	0	1,987	235
Eastern hemlock	107	2,141	320	278	7,105	969
Other softwoods	311	479	144	341	1,097	612
Total softwoods	564	2,938	834	620	10,189	1,817
Red maple	1,568	8,547	3,295	2,919	26,172	7,344
Sugar maple	1,208	3,994	2,068	3,178	11,864	7,512
Yellow birch	108	219	53	143	952	0
Sweet birch	670	1,476	265	1,042	1,649	744
Hickory	1,328	870	489	3,933	3,306	1,594
Beech	104	595	590	0	4,896	2,096
White ash	629	1,365	508	1,801	4,499	1,060
Yellow-poplar	90	5,433	893	0	22,693	3,103
Blackgum	0	427	57	0	469	189
Black cherry	987	10,124	3,580	1,274	30,185	8,787
Chestnut oak	7,394	-3,859	3,665	14,250	-2,827	11,269
Northern red oak	4,716	6,794	8,326	13,183	38,965	32,396
Select white oaks	1,549	19	1,431	2,258	4,894	5,567
Other oaks	1,990	-565	2,046	4,798	476	8,073
Basswood	169	1,818	385	625	4,809	1,345
Other hardwoods	1,415	4,046	1,182	2,324	10,959	2,926
Total hardwoods	23,926	41,303	28,834	51,727	163,963	94,006
All species	24,490	44,242	29,668	52,347	174,151	95,823

[a] Mortality is a component of net growth.

ALLEGHENY UNIT
TABLES

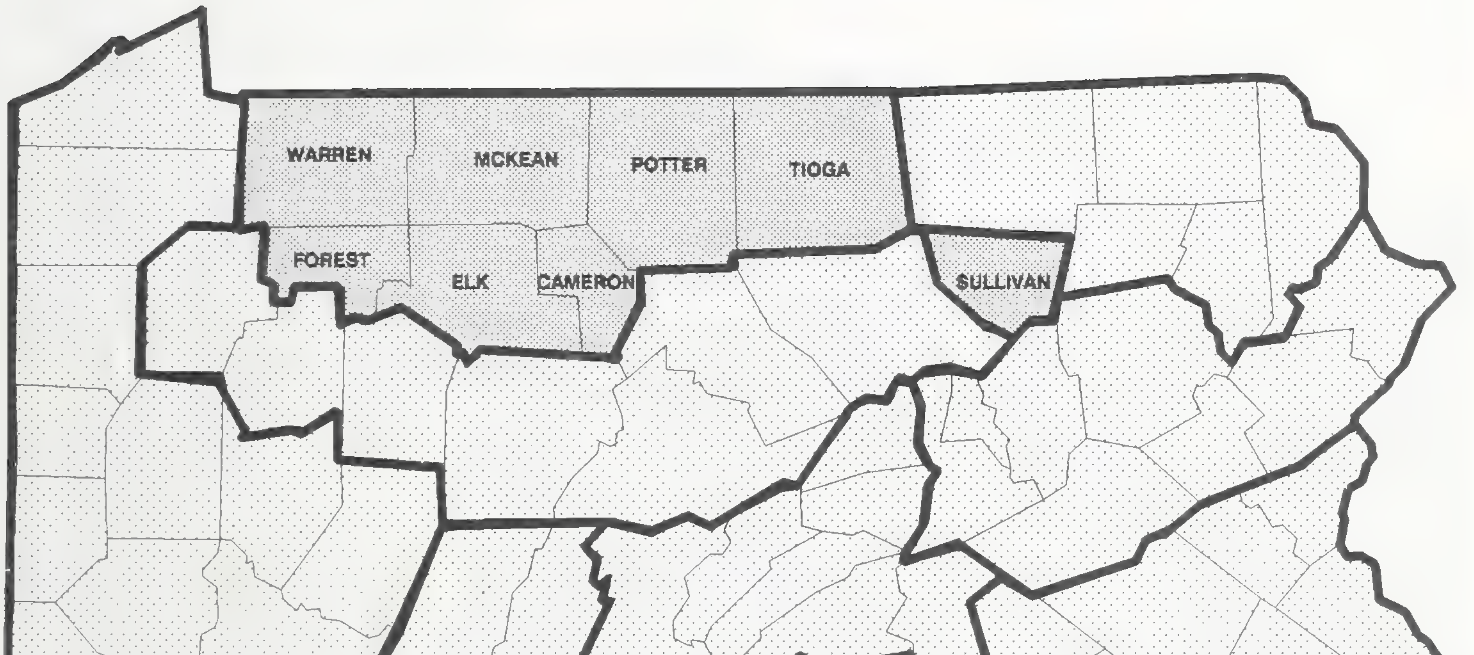

Table 67.--Area of timberland by forest type, forest-type group, and stand-size class, Allegheny Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	5.3	.0	5.5	.0	10.8	70.7
White pine	17.4	10.8	11.2	.0	39.3	36.8
Hemlock	53.6	10.4	11.6	.0	75.6	26.4
Scotch pine	.0	6.5	.0	.0	6.5	100.0
White/red pine group	76.3	27.7	28.3	.0	132.3	19.4
White spruce	.0	5.3	.0	.0	5.3	100.0
Spruce/fir group	.0	5.3	.0	.0	5.3	100.0
Wh. pine/no. red oak/wh. ash	8.8	5.5	.0	.0	14.3	56.9
Oak/pine group	8.8	5.5	.0	.0	14.3	56.9
Post, black, or bear oak	5.8	.0	.0	.0	5.8	100.0
Chestnut oak	14.6	.0	.0	.0	14.6	60.0
White oak/red oak/hickory	53.7	57.0	10.4	.0	121.1	20.8
White oak	10.9	4.2	6.7	.0	21.8	45.4
Northern red oak	153.8	28.2	5.2	.0	187.2	16.6
Y. poplar/wh. oak/no. red oak	5.5	.0	.0	.0	5.5	100.0
Hawthorn/reverting field	.0	.0	5.2	.0	5.2	100.0
Scarlet oak	7.1	.0	.0	.0	7.1	100.0
Sassafras/persimmon	.0	.0	5.0	.0	5.0	100.0
Red maple/central hardwoods	39.3	15.7	5.2	.0	60.2	30.1
Mixed central hardwoods	157.2	81.0	6.7	.0	244.9	13.5
Oak/hickory group	448.0	186.1	44.3	.0	678.5	7.2
Black ash/Amer. elm/red maple	15.2	.0	.0	.0	15.2	58.2
Red maple(lowland)	5.2	.0	.0	.0	5.2	100.0
Red maple(upland)	78.9	37.4	.0	.0	116.4	21.1
Willow	.0	.0	6.2	.0	6.2	100.0
Elm/ash/red maple group	99.3	37.4	6.2	.0	143.0	19.0
Sugar maple/beech/yellow birch	568.3	235.7	59.3	.0	863.3	6.5
Black cherry	272.6	93.1	76.0	4.4	446.2	8.9
Red maple/northern hardwoods	294.7	81.3	24.0	.0	400.1	10.5
Pin cherry/reverting field	.0	5.8	27.8	5.5	39.0	35.9
Mixed northern hardwoods	185.6	88.2	12.0	.0	285.7	12.7
Northern hardwoods group	1,321.2	504.1	199.1	9.9	2,034.3	3.0
Aspen	24.0	38.1	30.5	.0	92.6	23.6
Aspen/birch group	24.0	38.1	30.5	.0	92.6	23.6
All forest types	1,977.6	804.3	308.4	9.9	3,100.2	.9
SE	3.0	7.0	11.4	71.1	.9	

Table 68.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Allegheny Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	3,260	2,655	1,231	1,275	940	812	345	105
Other yellow pines	0	784	1,025	683	162	88	0	28
Eastern hemlock	18,658	16,528	14,496	9,965	4,932	2,875	2,083	1,112
Other softwoods	969	1,238	772	255	391	148	74	0
Total softwoods	22,887	21,205	17,525	12,178	6,425	3,923	2,501	1,246
Red maple	53,837	46,721	31,965	28,488	21,101	14,105	9,049	4,201
Sugar maple	69,035	44,910	26,243	24,327	16,865	8,402	5,440	2,597
Yellow birch	13,583	5,922	4,128	4,069	2,439	1,255	573	223
Sweet birch	36,338	15,511	8,549	8,434	5,836	2,631	886	372
Hickory	2,957	3,171	1,397	1,840	1,124	601	211	28
Beech	184,461	41,681	22,637	11,230	7,226	4,221	2,618	1,621
White ash	9,035	3,371	2,054	2,063	2,848	3,169	2,055	1,201
Black walnut	0	0	0	0	61	19	19	31
Yellow-poplar	0	0	247	208	104	261	201	267
Blackgum	770	321	774	385	113	45	32	0
Aspen	9,077	4,857	5,400	2,887	1,167	365	131	74
Black cherry	76,288	12,147	9,129	8,445	6,874	6,664	4,905	3,564
Chestnut oak	359	1,017	1,200	2,161	2,093	1,456	617	298
Northern red oak	4,952	1,493	1,410	2,050	3,385	3,727	3,035	2,521
Select white oaks	692	1,497	2,049	1,972	1,835	1,961	1,156	518
Other oaks	343	660	292	284	595	786	858	497
Basswood	0	220	817	1,530	1,556	1,149	589	237
Other hardwoods	15,208	9,163	2,781	4,068	4,531	2,764	1,292	521
Total hardwoods	476,937	192,661	121,074	104,440	79,754	53,579	33,665	18,775
All species	499,824	213,867	138,598	116,618	86,179	57,502	36,167	20,020
SE	6.1	5.8	3.9	3.2	2.8	2.7	3.1	3.8

Table 68.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	215	183	162	21	5,290	11,205	26.3
Other yellow pines	0	0	0	0	1,986	2,771	77.1
Eastern hemlock	587	378	485	24	36,937	72,123	13.2
Other softwoods	0	0	0	0	1,640	3,846	42.5
Total softwoods	802	561	647	45	45,853	89,945	11.4
Red maple	2,263	985	1,096	80	113,335	213,894	6.5
Sugar maple	1,230	686	612	61	86,463	200,407	6.5
Yellow birch	116	0	29	5	12,837	32,342	15.0
Sweet birch	99	20	29	0	26,856	78,704	13.7
Hickory	36	21	14	0	5,272	11,401	28.8
Beech	948	674	616	10	51,800	277,942	6.4
White ash	535	377	357	14	14,672	27,079	15.0
Black walnut	13	0	17	0	160	160	61.8
Yellow-poplar	159	103	104	6	1,661	1,661	26.5
Blackgum	0	0	0	0	1,348	2,439	28.8
Aspen	23	0	0	0	10,047	23,981	21.2
Black cherry	2,110	1,257	1,236	157	44,341	132,776	15.4
Chestnut oak	53	42	20	0	7,940	9,317	19.0
Northern red oak	1,905	1,027	1,219	158	20,438	26,883	10.9
Select white oaks	118	105	123	5	9,842	12,031	15.3
Other oaks	167	151	39	10	3,680	4,683	29.1
Basswood	82	55	63	5	6,084	6,304	16.0
Other hardwoods	208	128	83	20	16,397	40,767	23.0
Total hardwoods	10,065	5,633	5,657	532	433,174	1,102,772	3.4
All species	10,867	6,194	6,303	577	479,026	1,192,717	3.3
SE	4.9	5.3	5.4	10.9	2.0	3.3	

Table 69.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Allegheny Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									SE
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	
White and red pine	62	46	14	122	13	27	16	57	179	46.2
Eastern hemlock	471	34	83	587	619	53	104	776	1,364	20.8
Other softwoods	46	0	0	46	95	0	0	95	141	74.8
Total softwoods	579	80	97	756	727	81	120	928	1,684	18.6
Red maple	3,478	163	10	3,651	4,069	533	174	4,777	8,428	11.2
Sugar maple	1,995	244	71	2,310	2,811	473	205	3,489	5,799	11.8
Yellow birch	347	32	15	394	2,057	198	12	2,267	2,661	14.2
Sweet birch	918	95	51	1,065	2,555	271	14	2,840	3,905	14.9
Hickory	91	21	0	112	227	17	7	250	363	46.5
Beech	656	211	91	958	1,440	534	376	2,350	3,308	16.4
White ash	352	191	57	600	425	29	17	470	1,071	26.0
Black walnut	0	35	0	35	80	19	8	107	142	67.4
Yellow-poplar	0	19	12	31	0	0	0	0	31	72.2
Blackgum	0	0	0	0	0	0	5	5	5	100.0
Aspen	1,155	110	15	1,280	1,302	49	0	1,351	2,631	23.2
Black cherry	3,353	187	124	3,665	2,231	257	168	2,656	6,321	13.0
Chestnut oak	963	111	0	1,074	994	28	0	1,022	2,097	24.1
Northern red oak	1,511	170	76	1,756	780	82	10	872	2,628	17.6
Select white oaks	887	132	21	1,040	1,287	41	27	1,355	2,396	18.8
Other oaks	328	222	63	613	65	32	16	112	725	27.8
Basswood	310	4	0	314	334	114	0	448	762	25.7
Other commercial hardwoods	916	109	49	1,074	3,853	372	69	4,293	5,367	17.3
Noncommercial hardwoods	1,714	0	0	1,714	1,557	36	19	1,613	3,327	24.4
Total hardwoods	18,976	2,056	657	21,689	26,067	3,086	1,126	30,279	51,968	4.4
All species	19,555	2,136	754	22,445	26,794	3,167	1,247	31,207	53,653	4.3
SE	7.2	12.2	14.2	6.4	5.5	10.9	10.1	5.0	4.3	

Table 70.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Allegheny Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Larch	0	1	0	0	1	75.0
Spruce species	0	2	0	0	2	57.3
Red pine	1	0	1	0	2	70.8
Eastern white pine	19	5	0	0	25	33.6
Scotch pine	0	1	0	0	1	100.0
Eastern hemlock	41	15	0	0	55	21.6
Striped maple	377	158	21	0	557	17.0
Red maple	286	224	224	0	734	15.3
Silver maple	25	12	4	0	41	43.4
Sugar maple	275	99	52	0	426	24.0
Alder species	9	0	0	0	9	63.6
Hercules club	5	3	1	0	9	63.9
Serviceberry	114	68	56	0	238	19.1
Chokeberry species	1	15	0	0	16	94.8
Azalea species	2	0	0	0	2	100.0
Barberry	28	0	0	0	28	74.9
Yellow birch	70	17	14	0	101	33.8
Sweet birch	189	144	158	0	491	19.5
Paper birch	7	1	0	0	8	83.5
Gray birch	0	0	3	0	4	90.5
American hornbeam	55	121	59	0	235	26.1
Hickory species	29	10	6	0	46	46.8
American chestnut	0	0	0	0	0	100.0
New Jersey tea	0	0	1	0	1	100.0
Sweetfern	34	61	249	0	344	59.6
Flowering dogwood	52	11	12	0	75	45.2
Silky dogwood	9	0	0	0	9	100.0
Round-leaved dogwood	5	0	0	0	5	100.0
Panicled dogwood	5	1	44	0	50	45.6
Red-osier dogwood	1	3	0	0	4	77.9
Hawthorn species	110	45	58	0	213	20.8
American hazelnut	2	0	0	0	2	100.0
Beaked hazelnut	0	27	61	0	89	74.7
American beech	1,712	636	158	0	2,507	7.5
Russian olive	4	0	2	0	7	62.0
White ash	209	257	84	0	550	16.8
Huckleberry	47	23	0	0	70	59.2
Witch-hazel	189	89	44	0	322	15.9
Butternut	0	1	0	0	1	100.0
Black walnut	1	0	0	0	1	100.0
Mountain laurel	502	477	100	0	1,079	19.4
Common spicebush	28	12	0	0	40	44.5
Yellow-poplar	0	0	1	0	1	100.0
Bush honeysuckle	0	6	10	0	17	52.6
Cucumbertree	2	1	0	0	3	59.6
Apple species	4	2	30	0	36	64.6
Black tupelo	4	0	0	0	4	57.4
Eastern hophornbeam	90	44	29	0	163	19.2
American sycamore	0	0	0	0	0	100.0
Bigtooth aspen	9	1	26	0	36	42.4
Quaking aspen	7	29	32	0	68	22.4
Pin cherry	6	0	7	0	13	43.4
Black cherry	633	371	806	0	1,810	15.9
Chokecherry	0	2	9	0	11	59.1
White oak	8	12	1	0	21	34.4
Scarlet oak	0	0	0	0	0	100.0
Scrub, bear oak	0	0	2	0	2	100.0
Chestnut oak	3	3	0	0	7	58.9
Northern red oak	48	36	37	0	121	26.4
Black oak	2	2	0	0	4	44.5
Buckthorn species	0	6	0	0	6	100.0

Table 70.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Rhododendron species	1	9	0	0	11	67.3
Smooth sumac	0	0	1	0	1	100.0
Staghorn sumac	2	3	8	0	13	52.4
Currant species	4	7	1	0	12	67.2
Black locust	0	0	2	0	2	100.0
Rose species	24	0	9	0	34	49.9
Rubus species	1,364	1,048	1,543	17	3,972	12.6
Willow species	22	0	3	0	25	52.6
Black willow	0	0	15	0	15	100.0
American elderberry	18	6	5	0	29	36.0
Red-berried alder	4	0	0	0	4	77.1
Sassafras	18	8	19	0	45	53.4
Sweetleaf	11	72	0	0	84	72.9
American basswood	71	2	0	0	73	92.3
Winged elm	2	0	0	0	2	100.0
American elm	0	5	1	0	5	49.3
Slippery elm	9	1	65	0	74	87.0
Blueberry	511	847	397	0	1,755	23.3
Viburnum species	34	8	8	0	50	34.0
Maple-leaved viburnum	40	66	59	0	165	30.3
Hobblebush viburnum	24	0	0	0	24	100.0
Arrowwood	26	11	65	0	102	40.9
Blackhaw	15	2	4	0	21	74.2
Common prickly ash	1	0	0	0	1	100.0
Unknown deciduous shrub	2	8	6	0	17	42.7
Unknown tree	58	20	42	0	120	48.6
All species	7,525	5,183	4,659	17	17,384	5.6
SE	8.0	11.7	17.1	100.0	5.6	

Table 71.--Net dry weight[a] of all trees on timberland by class of material and species group, Allegheny Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group: Softwoods	Species group: Hardwoods	All groups	SE
Sawtimber trees:				
Sawlog portion	5,077	73,152	78,229	2.5
Upper stem	595	16,908	17,502	2.4
Total sawtimber trees	5,672	90,059	95,731	2.5
Poletimber trees	1,844	44,849	46,693	2.6
All growing stock	7,516	134,908	142,424	1.8
Rough cull trees[b]	287	3,645	3,932	7.1
Rotten cull trees[b]	30	1,681	1,711	10.2
Salvable dead trees[c]	169	2,771	2,940	8.5
Saplings[c]	653	12,352	13,005	4.6
Tops - growing stock	2,618	47,148	49,766	1.7
Tops - rough and rotten	97	1,914	2,011	6.0
All nongrowing stock	3,854	69,512	73,366	1.6
All classes	11,370	204,420	215,790	1.6
SE	8.6	1.8	1.6	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 72.--Net volume of all trees on timberland by class of timber and species group, Allegheny Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	54.8	217.3	1,753.6	1,420.8	3,446.5	2.6
Upper stem	6.3	26.4	412.8	334.7	780.2	2.5
Total sawtimber trees	61.1	243.7	2,166.5	1,755.5	4,226.7	2.6
Poletimber trees	17.5	90.5	989.4	1,093.1	2,190.4	2.7
Total growing-stock trees	78.5	334.2	3,155.9	2,848.5	6,417.1	1.9
Rough trees:						
Sawtimber size	3.3	4.7	26.1	25.1	59.1	9.8
Poletimber size	.0	.2	13.2	34.4	47.9	10.7
Total rough trees	3.3	4.9	39.3	59.6	107.0	7.5
Rotten trees:						
Sawtimber size	.0	1.2	16.3	26.7	44.2	11.6
Poletimber size	.0	.0	1.8	2.1	3.9	20.1
Total rotten trees	.0	1.2	18.1	28.7	48.0	11.0
Salvable dead[a] trees:						
Sawtimber size	.0	5.0	19.8	15.6	40.4	14.5
Poletimber size	.0	.8	20.7	19.1	40.6	9.5
Total salvable dead trees	.0	5.8	40.5	34.7	81.0	9.4
All classes	81.8	346.0	3,253.8	2,971.6	6,653.1	1.9
SE	23.2	9.5	3.5	3.0	1.9	

[a] Includes noncommercial species.

Table 73.--Net volume of growing-stock trees on timberland by species and diameter class, Allegheny Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	4.3	7.3	7.5	4.4	3.3	3.7	6.2	1.0	5.0	1.3	44.0
Eastern hemlock	31.0	37.0	27.9	29.3	30.4	26.2	15.9	13.5	13.5	.7	225.3
Other softwoods	1.2	4.3	4.4	1.7	.0	.0	.0	.0	.0	.0	11.6
Total softwoods	36.4	48.7	39.8	35.4	33.6	29.9	22.1	14.5	18.5	2.0	280.9
Red maple	107.1	218.7	241.5	210.9	170.3	84.7	55.9	34.9	47.9	2.3	1,174.2
Sugar maple	109.6	198.7	184.1	137.3	109.5	72.4	32.1	20.5	32.4	7.3	904.0
Yellow birch	14.6	24.8	26.2	17.9	11.9	1.1	.6	1.2	1.1	.0	99.4
Sweet birch	37.8	54.5	45.0	21.5	9.4	6.4	3.7	5.5	2.6	.0	186.3
Hickory	6.4	15.1	9.2	9.2	3.4	4.3	1.4	.0	1.2	.0	50.2
Beech	52.7	71.0	77.0	63.2	63.8	56.5	26.3	17.9	23.2	.0	451.5
White ash	9.0	26.2	49.3	50.3	38.3	29.4	16.9	16.2	11.2	.0	246.7
Yellow-poplar	.2	1.0	4.7	5.6	6.9	6.7	3.3	3.3	1.4	.0	33.1
Blackgum	1.0	1.7	1.0	.5	.0	.0	.0	.0	.0	.0	4.2
Black cherry	34.1	67.3	123.0	127.1	113.0	107.7	73.0	43.1	53.5	2.9	744.8
Chestnut oak	4.3	11.6	22.3	11.1	8.0	3.8	3.9	1.7	3.9	.0	70.6
Northern red oak	7.8	22.7	44.1	74.8	93.4	68.5	56.6	35.6	40.6	8.1	452.1
Select white oaks	9.2	14.9	29.1	31.0	19.8	12.5	6.0	4.7	4.6	.0	131.7
Other oaks	2.2	7.6	8.1	19.4	21.2	8.8	16.2	2.0	4.1	.0	89.6
Basswood	5.1	14.8	21.2	18.3	16.3	14.4	2.7	3.6	1.0	.0	97.4
Other hardwoods	34.2	74.5	88.6	49.1	31.1	16.8	3.7	3.4	4.1	1.7	307.1
Total hardwoods	435.4	825.2	974.1	847.3	716.1	493.8	302.4	193.6	232.8	22.3	5,043.0
All species	471.8	873.9	1,013.9	882.7	749.7	523.6	324.5	208.2	251.3	24.3	5,323.9

Table 74.--Net volume of growing-stock trees on timberland by species and diameter class, Allegheny Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	4.4	8.0	9.5	11.8	7.0	2.8	6.4	8.2	10.3	2.2	70.6	24.5
Other yellow pines	2.1	3.0	1.1	1.1	.0	.7	.0	.0	.0	.0	8.0	50.9
Eastern hemlock	35.2	51.0	45.6	43.5	42.2	29.8	21.3	17.2	32.8	3.0	321.7	9.8
Other softwoods	2.6	1.7	4.0	2.6	1.6	.0	.0	.0	.0	.0	12.5	45.9
Total softwoods	44.2	63.7	60.3	59.0	50.7	33.4	27.7	25.3	43.1	5.2	412.7	8.8
Red maple	90.1	201.7	260.7	271.2	243.8	150.5	105.1	55.8	83.3	11.2	1,473.4	5.2
Sugar maple	78.8	179.9	210.0	159.7	146.2	93.8	55.8	38.2	46.7	7.5	1,016.4	6.5
Yellow birch	10.2	24.8	26.3	21.1	13.6	7.0	4.2	.0	1.5	.5	109.2	13.4
Sweet birch	26.2	59.5	69.7	48.0	21.4	11.5	4.0	1.1	1.8	.0	243.2	10.0
Hickory	4.4	14.9	14.9	11.9	6.2	.9	1.1	1.2	1.0	.0	56.6	25.2
Beech	63.3	74.0	89.4	80.7	72.2	62.3	47.3	38.4	48.3	.8	576.8	7.3
White ash	6.4	15.8	37.1	62.8	57.7	46.4	27.3	23.3	27.9	1.6	306.5	10.6
Black walnut	.0	.0	.7	.2	.3	.7	.4	.0	.8	.0	3.2	75.0
Yellow-poplar	.6	1.4	2.0	5.8	6.1	12.1	8.7	6.8	9.4	.8	53.5	27.7
Blackgum	1.5	2.2	1.2	.4	.7	.0	.0	.0	.0	.0	6.1	28.7
Aspen	18.0	17.8	14.5	6.3	3.6	2.8	1.0	.0	.0	.0	64.0	18.6
Black cherry	27.0	61.2	94.5	136.6	143.7	140.2	107.5	78.7	109.2	24.2	922.8	6.8
Chestnut oak	3.1	13.1	21.4	21.7	13.3	8.0	2.0	1.8	.9	.0	85.3	18.8
Northern red oak	4.1	15.1	41.6	67.6	79.8	86.0	84.0	55.2	86.9	20.2	540.5	9.9
Select white oaks	5.7	12.2	19.7	32.3	26.5	16.0	5.1	5.0	7.9	.7	131.1	12.7
Other oaks	1.0	1.9	7.1	15.1	22.4	17.6	7.9	8.3	3.1	1.8	86.3	24.9
Basswood	2.4	11.9	20.9	23.4	17.2	9.1	4.6	3.4	4.5	.5	97.8	13.5
Other hardwoods	9.3	32.2	59.0	53.2	34.0	18.6	9.5	6.6	4.9	4.3	231.7	13.0
Total hardwoods	352.0	739.6	990.9	1,018.1	908.7	683.5	475.6	323.7	438.2	74.1	6,004.4	2.0
All species	396.3	803.3	1,051.2	1,077.2	959.4	716.9	503.3	349.0	481.3	79.3	6,417.1	1.9
SE	4.1	3.5	2.9	2.8	3.3	4.1	5.0	5.5	5.7	11.5	1.9	

Table 75.--Net volume of sawtimber trees on timberland by species and diameter class, Allegheny Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	23.1	17.0	14.0	16.2	31.1	5.6	24.4	7.2	138.7
Eastern hemlock	79.6	103.4	119.2	110.0	70.6	63.8	63.2	3.8	613.5
Other softwoods	10.6	4.6	.0	.0	.0	.0	.0	.0	15.2
Total softwoods	113.3	125.0	133.2	126.2	101.7	69.4	87.6	11.0	767.4
Red maple	-	718.5	637.2	348.2	235.6	155.2	225.2	11.8	2,331.8
Sugar maple	-	469.6	445.1	314.5	145.7	96.2	155.9	39.4	1,666.3
Yellow birch	-	70.7	46.8	4.9	1.7	6.8	6.5	.0	137.4
Sweet birch	-	60.3	29.4	20.8	12.3	19.4	8.7	.0	151.0
Hickory	-	33.7	14.9	20.1	4.9	.0	5.4	.0	79.0
Beech	-	237.8	282.6	266.6	131.4	94.9	117.9	.0	1,131.2
White ash	-	187.1	158.8	130.3	81.6	71.3	50.1	.0	679.1
Yellow-poplar	-	17.8	23.7	24.7	13.0	14.8	6.1	.0	100.1
Blackgum	-	2.5	.0	.0	.0	.0	.0	.0	2.5
Black cherry	-	450.3	448.9	477.7	332.5	205.3	276.5	14.8	2,206.0
Chestnut oak	-	29.9	23.2	11.7	13.8	5.1	12.6	.0	96.3
Northern red oak	-	246.2	353.2	281.6	244.6	163.8	195.5	46.6	1,531.7
Select white oaks	-	107.8	77.1	54.4	24.9	22.5	25.9	.0	312.6
Other oaks	-	68.7	84.8	37.8	76.0	10.9	20.1	.0	298.3
Basswood	-	64.8	62.7	61.8	11.4	17.0	5.2	.0	223.0
Other hardwoods	-	171.3	115.0	69.2	14.8	13.0	18.4	7.8	409.6
Total hardwoods	-	2,936.9	2,803.5	2,124.2	1,344.4	896.2	1,130.1	120.4	11,355.7
All species	113.3	3,062.0	2,936.7	2,250.4	1,446.0	965.6	1,217.7	131.4	12,123.1

Table 76.--Net volume of sawtimber trees on timberland by species and diameter class, Allegheny Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	31.2	48.6	29.1	12.9	28.8	41.4	52.4	11.6	256.0	21.4
Other yellow pines	3.3	3.9	.0	3.3	.0	.0	.0	.0	10.5	40.4
Eastern hemlock	138.4	159.6	172.4	128.7	97.7	82.8	162.6	16.0	958.3	11.1
Other softwoods	11.8	10.4	6.1	.0	.0	.0	.0	.0	28.3	52.3
Total softwoods	184.7	222.5	207.5	144.9	126.5	124.2	215.0	27.5	1,253.0	9.7
Red maple	-	990.7	993.6	644.1	479.3	266.1	417.2	56.2	3,847.4	6.6
Sugar maple	-	575.8	581.9	395.6	251.3	186.1	243.2	39.1	2,273.0	8.5
Yellow birch	-	79.4	53.9	28.8	19.6	.0	7.8	2.5	192.0	18.3
Sweet birch	-	180.3	90.4	50.5	18.3	4.8	9.2	.0	353.6	12.4
Hickory	-	46.4	24.0	4.0	4.7	3.6	4.1	.0	86.9	23.3
Beech	-	300.9	305.8	284.5	227.7	198.4	252.2	3.8	1,573.2	10.1
White ash	-	242.4	244.2	208.5	127.4	111.4	137.3	9.7	1,080.8	11.7
Black walnut	-	.8	.8	2.8	1.7	.0	2.6	.0	8.7	90.9
Yellow-poplar	-	23.3	25.1	53.8	42.8	32.3	55.2	4.8	237.3	27.6
Blackgum	-	1.8	2.4	.0	.0	.0	.0	.0	4.2	53.3
Aspen	-	23.8	15.1	13.4	5.2	.0	.0	.0	57.6	27.7
Black cherry	-	501.0	604.9	644.8	518.3	399.6	592.5	153.7	3,414.8	7.1
Chestnut oak	-	74.9	50.4	31.0	7.8	7.9	3.6	.0	175.6	20.6
Northern red oak	-	237.7	318.2	368.4	384.2	264.3	437.3	108.1	2,118.2	10.1
Select white oaks	-	122.0	110.9	71.9	24.8	23.7	43.3	3.5	400.1	13.1
Other oaks	-	54.2	92.4	76.7	35.7	40.7	15.2	9.4	324.4	25.4
Basswood	-	84.6	71.6	41.2	22.4	16.7	25.1	1.7	263.4	15.7
Other hardwoods	-	218.9	152.1	88.2	45.6	33.5	24.3	20.9	583.4	14.1
Total hardwoods	-	3,759.0	3,737.6	3,008.3	2,216.8	1,589.3	2,270.1	413.3	16,994.4	2.9
All species	184.7	3,981.5	3,945.1	3,153.3	2,343.4	1,713.5	2,485.2	440.8	18,247.4	2.7
SE	14.6	2.9	3.3	4.2	5.1	5.6	5.8	12.2	2.7	

Table 77.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Allegheny Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	18.5	20.4	45.5	62.7	147.1	20.7	28.0	104.9	102.4	256.0
Other yellow pines	.0	.0	3.3	-	3.3	.2	.0	10.2	-	10.5
Eastern hemlock	487.9	-	-	-	487.9	958.3	-	-	-	958.3
Other softwoods	.0	-	-	-	.0	28.3	-	-	-	28.3
Total softwoods	506.4	20.4	48.7	62.7	638.2	1,007.5	28.0	115.1	102.4	1,253.0
Red maple	63.6	339.7	979.0	480.6	1,863.0	66.8	477.6	2,153.6	1,149.4	3,847.4
Sugar maple	179.2	235.6	450.3	250.3	1,115.4	212.5	341.2	1,098.5	620.9	2,273.0
Yellow birch	.5	4.7	35.3	18.2	58.7	1.9	13.1	126.9	50.2	192.0
Sweet birch	6.0	17.4	42.8	16.7	82.8	8.7	29.6	187.7	127.6	353.6
Hickory	.0	4.6	4.6	7.3	16.5	.0	9.9	49.5	27.5	86.9
Beech	18.7	70.9	536.2	340.7	966.5	22.2	86.5	825.2	639.3	1,573.2
White ash	171.1	166.8	194.3	62.1	594.2	187.8	270.2	459.0	163.7	1,080.8
Black walnut	.0	.0	6.6	.6	7.1	.0	.0	7.3	1.4	8.7
Yellow-poplar	57.0	54.8	53.5	23.7	188.9	57.7	61.9	85.6	32.0	237.3
Blackgum	.0	.0	.0	.0	.0	.0	.0	3.6	.5	4.2
Aspen	.0	4.5	4.6	9.5	18.6	.0	4.5	18.8	34.3	57.6
Black cherry	500.7	508.8	904.4	395.0	2,308.9	525.3	673.7	1,558.8	657.0	3,414.8
Chestnut oak	2.0	18.0	18.8	11.4	50.3	2.0	28.3	100.9	44.3	175.6
Northern red oak	280.0	455.4	601.5	225.4	1,562.3	287.3	553.0	947.5	330.4	2,118.2
Select white oaks	22.0	38.7	60.7	45.9	167.2	22.0	57.6	194.2	126.3	400.1
Other oaks	16.2	50.1	68.3	43.1	177.8	17.8	71.1	137.5	97.9	324.4
Basswood	18.8	29.4	47.7	11.3	107.1	19.4	52.5	152.2	39.3	263.4
Other hardwoods	8.9	20.8	106.1	76.6	212.5	8.9	36.4	281.3	256.8	583.4
Total hardwoods	1,344.6	2,020.3	4,114.6	2,018.3	9,497.9	1,440.4	2,767.2	8,388.0	4,398.8	16,994.4
Percent of hardwood in each grade	14	21	44	21	100	9	16	49	26	100

Table 78.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Allegheny Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	47.5	23.4	11.5	25.6	39.0	147.1	53.3	35.6	64.0	52.0	51.0	256.0
Other yellow pines	.0	.0	1.9	-	1.4	3.3	.4	.0	6.8	-	3.2	10.5
Eastern hemlock	336.2	-	-	-	151.7	487.9	690.3	-	-	-	268.0	958.3
Other softwoods	.0	-	-	-	.0	.0	21.6	-	-	-	6.7	28.3
Total softwoods	383.7	23.4	13.4	25.6	192.2	638.2	765.7	35.6	70.8	52.0	328.9	1,253.0
Red maple	98.8	478.2	648.9	351.3	285.8	1,863.0	98.8	656.4	1,867.2	829.0	396.0	3,847.4
Sugar maple	140.2	294.1	359.5	153.6	167.9	1,115.4	140.2	411.1	1,067.9	421.7	232.1	2,273.0
Yellow birch	.0	5.8	24.1	16.4	12.5	58.7	.0	15.0	96.8	42.9	37.2	192.0
Sweet birch	5.7	23.9	26.1	14.0	13.3	82.8	5.7	36.7	164.7	114.8	31.8	353.6
Hickory	.0	2.7	3.2	6.3	4.3	16.5	.0	9.5	58.8	14.4	4.3	86.9
Beech	17.2	109.7	324.2	259.0	256.3	966.5	17.2	134.0	567.8	525.0	329.1	1,573.2
White ash	252.9	178.0	120.3	10.7	32.3	594.2	252.9	320.4	425.4	39.4	42.6	1,080.8
Black walnut	.0	.0	3.6	.0	3.5	7.1	.0	.0	3.6	.8	4.3	8.7
Yellow-poplar	103.5	54.8	12.6	1.5	16.5	188.9	103.5	66.8	47.3	1.5	18.2	237.3
Blackgum	.0	.0	.0	.0	.0	.0	.0	.0	3.2	.0	.9	4.2
Aspen	.0	6.8	3.1	8.8	.0	18.6	.0	6.8	17.4	31.7	1.7	57.6
Black cherry	779.5	712.8	510.0	135.2	171.3	2,308.9	779.5	1,000.7	1,167.1	258.4	209.1	3,414.8
Chestnut oak	3.3	24.2	14.7	5.7	2.5	50.3	3.3	36.6	109.1	20.9	5.7	175.6
Northern red oak	370.8	595.3	433.4	95.0	67.8	1,562.3	370.8	734.7	783.6	151.7	77.5	2,118.2
Select white oaks	30.1	56.8	51.6	20.3	8.4	167.2	30.1	80.6	215.0	57.8	16.5	400.1
Other oaks	18.8	76.0	59.0	10.5	13.4	177.8	18.8	105.6	145.7	34.5	19.8	324.4
Basswood	34.3	36.7	24.1	6.0	6.0	107.1	34.3	66.9	123.2	25.7	13.1	263.4
Other hardwoods	12.0	22.7	78.8	55.7	43.2	212.5	12.0	40.2	269.3	208.4	53.5	583.4
Total hardwoods	1,867.1	2,678.5	2,697.2	1,149.9	1,105.1	9,497.9	1,867.1	3,722.0	7,133.2	2,778.7	1,493.4	16,994.4
All species	2,250.8	2,702.0	2,710.6	1,175.5	1,297.2	10,136.1	2,632.8	3,757.6	7,204.0	2,830.7	1,822.3	18,247.4

Table 79.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Allegheny Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	299	3,035	948	1,079	13,019	3,845
Eastern hemlock	872	10,613	3,004	2,841	38,902	11,501
Other softwoods	23	691	0	0	1,866	0
Total softwoods	1,194	14,338	3,953	3,920	53,786	15,347
Red maple	5,744	36,236	11,588	5,457	155,103	36,039
Sugar maple	5,664	18,413	8,759	10,599	70,144	21,985
Yellow birch	1,322	1,782	750	1,547	6,085	1,548
Sweet birch	2,388	5,800	1,166	1,650	17,028	1,424
Hickory	259	1,449	877	200	3,802	3,056
Beech	2,594	15,747	5,627	7,094	49,361	14,972
White ash	1,860	6,760	1,721	5,066	39,218	6,747
Yellow-poplar	152	1,781	149	621	11,633	654
Blackgum	0	157	0	0	139	0
Black cherry	3,601	25,674	9,877	7,792	138,176	38,372
Chestnut oak	657	2,161	1,009	656	8,974	2,955
Northern red oak	1,513	13,477	6,270	3,830	72,452	25,508
Select white oaks	917	1,449	1,447	797	12,227	5,516
Other oaks	749	966	1,184	1,661	7,006	4,912
Basswood	834	1,165	1,126	1,300	7,809	4,606
Other hardwoods	6,671	3,035	3,309	8,827	22,080	3,263
Total hardwoods	34,926	136,051	54,858	57,098	621,239	171,556
All species	36,120	150,390	58,811	61,018	675,025	186,903

[a] Mortality is a component of net growth.

NORTH-CENTRAL UNIT TABLES

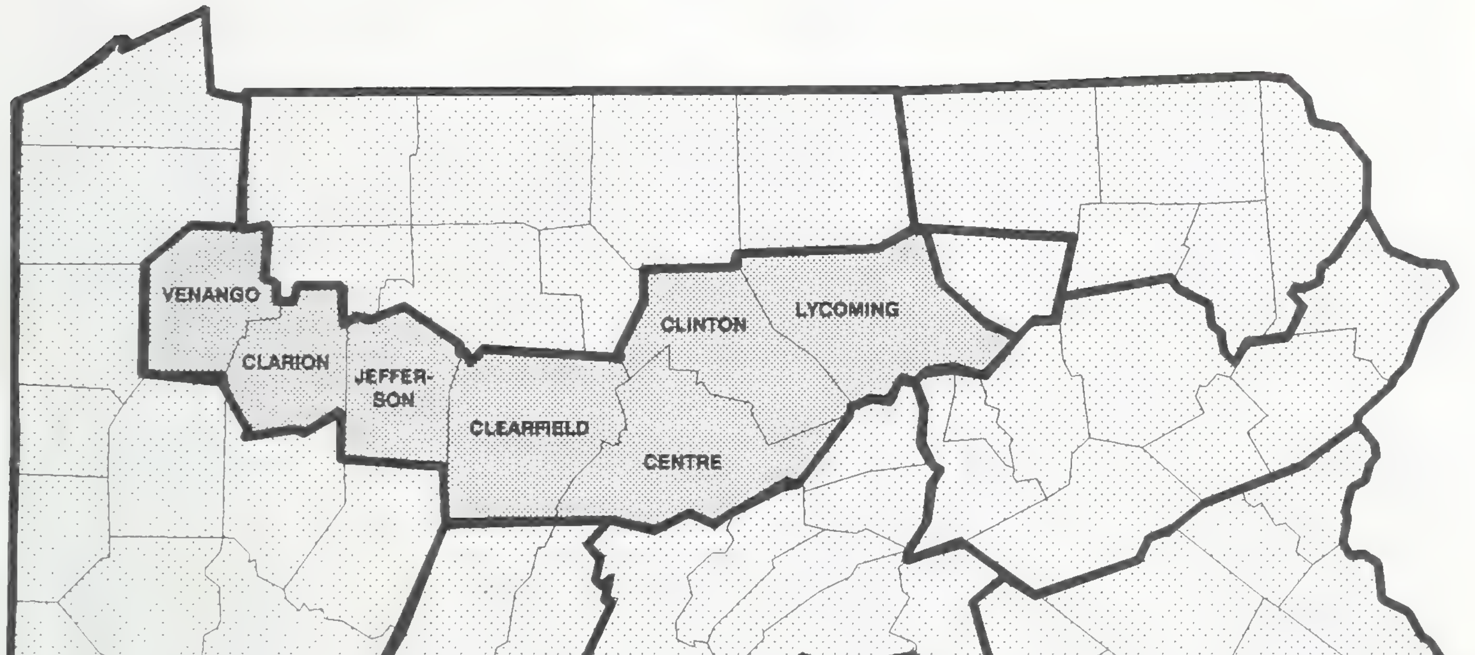

Table 80.--Area of timberland by forest type, forest-type group, and stand-size class, North-central Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	5.9	5.5	5.5	.0	16.9	57.8
White pine	57.4	17.5	16.7	.0	91.7	24.1
White pine/hemlock	.0	6.3	.0	.0	6.3	100.0
Hemlock	107.2	16.0	5.0	.0	128.3	19.7
Other	.0	10.9	.0	.0	10.9	100.0
White/red pine group	170.5	56.3	27.2	.0	254.0	14.0
Spruce/fir group	.0	11.1	5.0	.0	16.1	57.8
Virginia pine	10.9	.0	.0	.0	10.9	71.2
Eastern redcedar	.0	.0	5.0	.0	5.0	100.0
Pitch pine	11.6	.0	.0	.0	11.6	71.5
Loblolly/shortleaf group	22.5	.0	5.0	.0	27.5	45.1
Wh. pine/no. red oak/wh. ash	15.6	12.2	.0	.0	27.8	45.3
Virginia pine/oak	.0	5.0	.0	.0	5.0	100.0
Other oak/pine	5.4	.0	5.6	.0	10.9	70.7
Oak/pine group	20.9	17.2	5.6	.0	43.7	35.7
Post, black, or bear oak	4.8	5.4	.0	.0	10.2	70.8
Chestnut oak	70.5	131.1	16.7	.0	218.3	15.2
White oak/red oak/hickory	115.0	63.9	17.5	.0	196.4	16.5
White oak	51.7	33.7	.0	.0	85.4	25.4
Northern red oak	51.7	11.1	5.1	.0	68.0	28.4
Y. poplar/wh. oak/no. red oak	11.1	.0	5.5	.0	16.6	57.8
Black locust	.0	10.9	16.6	.0	27.5	44.1
Yellow-poplar	11.2	.0	.0	.0	11.2	70.7
Hawthorn/reverting field	.0	.0	14.0	.0	14.0	59.4
Scarlet oak	.0	5.3	.0	.0	5.3	100.0
Sassafras/persimmon	.0	5.3	.0	.0	5.3	100.0
Red maple/central hardwoods	46.7	37.5	11.4	.0	95.7	23.9
Mixed central hardwoods	338.6	272.0	28.5	.0	639.1	8.0
Oak/hickory group	701.3	576.2	115.5	.0	1,393.0	4.3
Black ash/Amer. elm/red maple	.0	.0	5.3	.0	5.3	100.0
Red maple(upland)	16.6	32.5	28.5	.0	77.6	26.7
River birch/sycamore	5.5	.0	5.1	.0	10.6	70.8
Elm/ash/red maple group	22.1	32.5	38.9	.0	93.5	24.1
Sugar maple/beech/yellow birch	147.2	32.3	15.6	.0	195.1	16.1
Black cherry	75.4	23.5	28.0	.0	126.9	20.1
Red maple/northern hardwoods	160.8	63.8	20.3	.0	245.0	13.7
Pin cherry/reverting field	.0	5.5	15.9	.0	21.4	50.1
Mixed northern hardwoods	130.5	62.2	17.0	.0	209.7	15.6
Northern hardwoods group	514.0	187.2	96.8	.0	798.0	6.9
Aspen	5.7	50.3	29.1	.0	85.0	25.7
Paper birch	.0	6.6	.0	.0	6.6	100.0
Aspen/birch group	5.7	56.8	29.1	.0	91.6	24.9
All forest types	1,457.1	937.4	323.1	.0	2,717.6	1.3
SE	4.2	6.4	11.8	.0	1.3	

Table 81.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, North-central Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	25,621	15,381	8,747	5,117	2,655	1,806	1,101	619
Virginia pine	939	996	1,289	950	709	281	51	13
Other yellow pines	363	2,636	2,213	1,195	1,194	459	183	133
Eastern hemlock	21,906	21,059	11,507	8,331	4,482	3,326	2,207	1,246
Other softwoods	3,031	4,509	2,740	960	134	19	139	15
Total softwoods	51,861	44,582	26,497	16,552	9,174	5,892	3,680	2,027
Red maple	174,001	80,209	48,557	28,094	16,068	7,939	5,061	2,322
Sugar maple	17,430	10,750	4,993	4,334	2,324	2,187	1,325	679
Yellow birch	4,033	2,733	2,293	2,313	885	453	357	108
Sweet birch	44,108	15,979	9,712	6,889	4,771	1,781	864	389
Hickory	3,373	3,030	941	1,160	1,299	650	590	149
Beech	24,861	7,943	3,871	2,413	1,326	679	540	516
White ash	11,580	4,244	1,753	1,420	865	818	659	308
Black walnut	0	0	0	0	0	56	42	0
Yellow-poplar	919	649	203	528	514	444	354	304
Blackgum	9,971	7,091	2,114	711	260	17	89	84
Aspen	4,324	3,933	2,868	1,639	729	393	24	16
Black cherry	73,658	12,067	6,325	5,002	4,402	3,324	2,110	965
Chestnut oak	5,073	5,743	8,654	10,677	8,754	4,889	2,380	1,567
Northern red oak	19,718	4,562	6,651	5,353	4,899	4,179	2,638	1,711
Select white oaks	6,272	7,651	9,455	8,593	7,020	4,083	2,451	1,030
Other oaks	8,668	3,941	2,465	2,913	3,037	1,949	1,463	805
Black locust	4,383	950	1,340	563	292	155	82	94
Basswood	293	0	419	488	550	459	411	120
Other hardwoods	27,001	10,460	5,859	5,215	2,805	1,176	614	312
Total hardwoods	439,665	181,935	118,475	88,308	60,802	35,632	22,055	11,481
All species	491,527	226,517	144,972	104,860	69,975	41,524	25,735	13,509
SE	6.3	5.2	4.3	3.7	3.2	3.3	4.0	5.2

Table 81.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	402	329	370	21	21,167	62,169	18.0
Virginia pine	0	0	0	0	3,294	5,229	42.2
Other yellow pines	13	0	0	0	5,389	8,388	37.8
Eastern hemlock	464	251	313	15	32,143	75,108	13.7
Other softwoods	0	0	0	0	4,007	11,547	33.1
Total softwoods	878	580	683	36	65,999	162,443	10.2
Red maple	905	625	340	21	109,933	364,143	6.6
Sugar maple	287	163	146	21	16,460	44,640	15.6
Yellow birch	58	9	0	0	6,477	13,244	21.4
Sweet birch	179	19	13	0	24,616	84,703	13.0
Hickory	114	70	8	0	4,980	11,383	20.4
Beech	168	171	173	11	9,869	42,673	20.9
White ash	183	142	89	18	6,257	22,081	20.1
Black walnut	12	0	0	0	110	110	80.5
Yellow-poplar	151	96	46	0	2,641	4,209	31.6
Blackgum	0	0	15	0	3,291	20,352	20.5
Aspen	0	0	0	0	5,669	13,926	25.4
Black cherry	479	255	160	20	23,041	108,766	14.7
Chestnut oak	591	287	232	0	38,031	48,847	10.9
Northern red oak	974	786	737	70	27,998	52,277	11.4
Select white oaks	743	342	346	54	34,118	48,041	10.0
Other oaks	446	197	241	23	13,540	26,149	14.0
Black locust	0	9	22	0	2,558	7,891	34.6
Basswood	53	22	34	0	2,557	2,850	29.7
Other hardwoods	153	35	98	0	16,268	53,729	15.6
Total hardwoods	5,497	3,230	2,698	239	348,415	970,016	3.7
All species	6,375	3,810	3,381	275	414,415	1,132,459	3.4
SE	5.9	6.9	7.8	15.7	2.5	3.4	

Table 82.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, North-central Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									SE
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	
White and red pine	1,341	129	39	1,509	1,015	117	24	1,156	2,665	23.4
Virginia pine	154	16	0	170	325	0	0	325	495	55.7
Other yellow pines	785	125	0	910	743	136	18	897	1,807	23.4
Eastern hemlock	499	61	65	624	796	322	158	1,275	1,899	20.0
Other softwoods	0	0	0	0	51	0	0	51	51	100.0
Total softwoods	2,779	330	104	3,213	2,931	575	199	3,705	6,919	12.6
Red maple	2,573	60	9	2,642	2,725	321	102	3,148	5,790	14.4
Sugar maple	376	81	29	486	549	168	38	755	1,241	31.9
Yellow birch	76	42	11	130	789	36	31	855	984	24.4
Sweet birch	458	90	14	562	1,831	119	31	1,981	2,543	24.8
Hickory	83	26	0	109	192	59	0	251	360	36.4
Beech	27	23	0	50	356	42	92	490	540	56.2
White ash	139	0	0	139	149	52	0	201	341	41.2
Yellow-poplar	0	0	0	0	23	81	0	104	104	100.0
Blackgum	38	0	0	38	0	0	10	10	48	81.7
Aspen	230	0	0	230	520	34	0	553	784	28.5
Black cherry	709	144	16	869	744	39	25	808	1,677	22.5
Chestnut oak	2,932	475	312	3,719	4,038	399	106	4,543	8,263	13.8
Northern red oak	1,389	413	253	2,055	890	146	123	1,159	3,214	17.0
Select white oaks	2,626	294	121	3,041	1,775	157	82	2,014	5,055	13.2
Other oaks	1,877	447	160	2,484	816	228	65	1,109	3,592	23.0
Black locust	203	0	0	203	290	0	0	290	493	66.4
Basswood	93	17	0	110	213	48	0	261	371	39.0
Other commercial hardwoods	555	72	17	643	1,728	133	35	1,896	2,539	18.9
Noncommercial hardwoods	1,605	60	16	1,682	912	23	24	959	2,641	17.4
Total hardwoods	15,991	2,244	958	19,193	18,539	2,085	764	21,389	40,581	5.6
All species	18,770	2,574	1,062	22,406	21,470	2,661	964	25,094	47,500	5.0
SE	8.1	11.1	17.7	7.5	6.8	13.9	14.6	6.1	5.0	

Table 83.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, North-central Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern redcedar	1	0	5	0	6	84.3
Larch	1	0	1	0	1	71.0
Spruce species	2	4	0	0	6	45.9
Jack pine	0	4	0	0	4	100.0
Red pine	1	2	1	0	5	43.9
Pitch pine	0	0	0	0	0	100.0
Eastern white pine	51	31	19	0	101	20.9
Scotch pine	0	1	1	0	2	62.3
Virginia pine	0	2	3	0	6	62.8
Eastern hemlock	82	32	1	0	116	26.1
Striped maple	78	49	26	0	153	23.4
Red maple	733	379	371	0	1,483	10.4
Sugar maple	125	39	4	0	168	26.7
Alder species	69	5	0	0	75	54.3
Hercules club	12	0	8	0	20	46.3
Serviceberry	243	69	70	0	382	15.4
Chokeberry species	32	0	0	0	32	90.2
Azalea species	1	26	28	0	55	51.5
Barberry	36	0	17	0	54	51.3
Yellow birch	28	14	11	0	53	39.8
Sweet birch	454	144	114	0	711	23.6
River birch	1	0	1	0	2	71.2
Paper birch	4	1	0	0	5	71.5
Gray birch	0	2	0	0	2	83.9
American hornbeam	129	8	2	0	139	24.0
Hickory species	42	9	2	0	53	22.6
Bitternut hickory	1	0	0	0	1	100.0
Shagbark hickory	0	0	0	0	0	100.0
American chestnut	8	6	22	0	37	62.2
Sweetfern	19	7	90	0	116	57.9
Flowering dogwood	65	9	49	0	123	26.1
Alternate-leaved dogwood	1	0	0	0	1	100.0
Silky dogwood	1	0	5	0	6	83.4
Panicled dogwood	110	22	90	0	222	30.8
Red-osier dogwood	9	0	0	0	9	100.0
Hawthorn species	308	84	57	0	449	17.1
American hazelnut	43	1	8	0	52	50.8
Beaked hazelnut	54	6	0	0	60	52.4
American beech	303	76	19	0	398	17.3
Russian olive	3	1	1	0	5	66.4
White ash	207	58	33	0	299	17.3
Green ash	10	0	1	0	11	64.9
Huckleberry	451	730	242	0	1,423	23.9
Witch-hazel	499	205	171	0	874	12.6
Large-leaved holly	2	0	6	0	8	77.3
Winterberry holly	0	48	0	0	48	100.0
Black walnut	0	0	1	0	1	100.0
Mountain laurel	1,528	2,624	175	0	4,328	10.5
Common spicebush	36	7	8	0	51	27.5
Yellow-poplar	28	1	10	0	38	72.6
Bush honeysuckle	7	2	39	0	49	61.3
Osage-orange	1	0	0	0	1	100.0
Cucumbertree	13	4	0	0	17	51.4
Apple species	13	5	18	0	37	36.7
White mulberry	0	0	1	0	1	100.0
Mountain holly	23	0	8	0	31	78.4
Black tupelo	11	24	0	0	35	21.2
Eastern hophornbeam	44	15	18	0	77	27.0
Sourwood	1	0	0	0	1	100.0
Ninebark	6	0	0	0	6	100.0
Balsam poplar	1	0	0	0	1	100.0

Table 83.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern cottonwood	3	6	0	0	10	74.3
Bigtooth aspen	26	35	14	0	74	30.4
Quaking aspen	8	18	18	0	43	22.2
Cherry species	2	7	1	0	10	74.5
Pin cherry	2	2	34	0	38	51.6
Black cherry	1,060	371	309	0	1,740	13.2
Chokecherry	66	35	5	0	106	31.7
White oak	148	51	47	0	246	17.3
Scarlet oak	25	1	10	0	37	65.4
Scrub, bear oak	7	20	0	0	27	58.2
Shingle oak	1	1	0	0	2	59.1
Pin oak	0	0	1	0	1	100.0
Chestnut oak	81	73	88	0	242	24.2
Northern red oak	152	87	65	0	303	14.0
Black oak	61	93	3	0	157	53.3
Rhododendron species	30	22	0	0	52	53.2
Smooth sumac	0	0	36	0	36	96.8
Staghorn sumac	1	1	2	0	4	50.1
Currant species	17	0	0	0	17	49.9
Black locust	23	5	12	0	41	62.1
Rose species	51	16	37	0	104	34.0
Rubus species	1,811	548	1,261	0	3,620	13.2
Willow species	23	2	0	0	25	91.7
Black willow	0	1	15	0	16	86.8
American elderberry	29	1	21	0	51	60.1
Sassafras	94	200	82	0	377	26.4
Spirea species	1	7	25	0	33	78.1
Sweetleaf	0	52	0	0	52	100.0
American basswood	8	0	1	0	9	88.0
Elm species	2	0	0	0	2	100.0
American elm	7	0	11	0	18	53.1
Slippery elm	19	13	24	0	56	55.7
American bladdernut	7	0	0	0	7	74.2
Blueberry	2,066	3,582	853	0	6,500	10.3
Viburnum species	14	3	47	0	64	75.1
Maple-leaved viburnum	106	46	17	0	169	26.8
Arrowwood	135	66	57	0	257	27.7
Nannyberry	1	0	0	0	1	100.0
Blackhaw	1	0	0	0	1	100.0
Unknown deciduous shrub	218	2	4	0	225	86.0
Unknown tree	4	14	6	0	25	40.7
All species	12,248	10,141	4,862	0	27,251	4.5
SE	7.4	9.1	17.1	.0	4.5	

Table 84.--Net dry weight[a] of all trees on timberland by class of material and species group, North-central Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	6,812	44,538	51,350	3.2
Upper stem	829	10,478	11,307	3.0
Total sawtimber trees	7,641	55,016	62,657	3.1
Poletimber trees	2,638	33,957	36,595	2.7
All growing stock	10,278	88,973	99,252	2.2
Rough cull trees[b]	457	3,550	4,007	7.3
Rotten cull trees[b]	29	908	937	12.7
Salvable dead trees[c]	252	1,355	1,606	10.9
Saplings[c]	1,366	10,755	12,121	4.3
Tops - growing stock	3,641	31,708	35,349	2.1
Tops - rough and rotten	156	1,622	1,778	6.5
All nongrowing stock	5,901	49,898	55,799	2.0
All classes	16,179	138,871	155,051	2.0
SE	8.5	2.2	2.0	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 85.--Net volume of all trees on timberland by class of timber and species group, North-central Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	178.2	218.4	704.9	984.0	2,085.4	3.4
Upper stem	21.8	27.1	173.1	234.1	456.1	3.1
Total sawtimber trees	199.9	245.5	878.0	1,218.0	2,541.5	3.3
Poletimber trees	76.5	85.4	749.2	750.7	1,661.8	3.0
Total growing-stock trees	276.4	330.9	1,627.2	1,968.7	4,203.3	2.4
Rough trees:						
Sawtimber size	2.7	7.1	20.5	20.5	50.7	9.3
Poletimber size	.5	.9	26.3	18.8	46.4	11.2
Total rough trees	3.1	7.9	46.8	39.2	97.1	7.6
Rotten trees:						
Sawtimber size	.6	.4	8.5	10.1	19.6	14.8
Poletimber size	.0	.2	2.2	1.9	4.3	29.5
Total rotten trees	.6	.6	10.7	12.0	23.9	14.0
Salvable dead[a] trees:						
Sawtimber size	2.0	2.2	2.1	9.7	16.0	17.5
Poletimber size	1.8	.9	4.2	8.4	15.3	14.8
Total salvable dead trees	3.9	3.1	6.3	18.0	31.3	12.9
All classes	283.9	342.5	1,691.0	2,038.0	4,355.5	2.4
SE	13.7	11.4	4.2	3.4	2.4	

[a] Includes noncommercial species.

Table 86.--Net volume of growing-stock trees on timberland by species and diameter class, North-central Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	18.1	19.0	23.9	13.3	13.3	11.5	18.5	7.3	22.4	3.2	150.5
Eastern hemlock	23.7	39.2	34.2	39.2	33.7	21.2	11.3	10.1	13.4	.0	225.9
Other softwoods	9.3	10.4	10.5	12.8	2.7	4.0	.0	.0	.0	.0	49.6
Total softwoods	51.2	68.5	68.7	65.3	49.6	36.7	29.8	17.4	35.8	3.2	426.1
Red maple	95.2	137.0	142.5	108.6	55.1	37.9	33.0	11.5	11.1	1.0	632.9
Sugar maple	18.7	25.0	29.3	34.8	27.8	15.5	4.4	3.3	4.7	1.8	165.5
Yellow birch	9.7	14.4	11.3	8.3	1.6	2.2	1.8	.0	.1	.0	49.5
Sweet birch	20.7	41.1	41.5	17.6	14.4	7.5	.4	1.0	.3	.0	144.5
Hickory	4.1	7.2	10.0	22.0	10.1	5.5	3.9	.0	3.4	.0	66.2
Beech	4.9	7.4	12.7	14.5	23.7	11.9	8.0	6.4	9.3	10.6	109.2
White ash	4.5	9.7	16.8	16.9	10.1	7.4	10.7	1.9	2.9	.9	82.0
Yellow-poplar	.7	3.4	13.2	8.8	9.4	8.4	5.2	4.7	5.3	.0	59.3
Blackgum	2.5	1.2	.5	.0	1.5	1.9	.0	.0	1.2	.0	8.8
Black cherry	19.7	49.4	76.0	37.4	30.5	22.8	12.5	5.3	4.9	.0	258.5
Chestnut oak	32.3	60.5	67.5	61.4	50.0	33.6	18.9	13.7	7.7	.0	345.6
Northern red oak	20.1	42.2	61.2	63.0	50.1	51.1	44.9	25.8	53.2	11.5	423.3
Select white oaks	43.4	64.0	73.4	57.2	48.4	28.7	30.4	15.9	14.9	.0	376.3
Other oaks	18.5	41.6	40.9	41.7	32.7	34.2	16.9	7.0	14.2	2.5	250.2
Basswood	1.7	3.9	10.2	13.3	6.3	2.5	.7	1.2	.0	.0	39.8
Other hardwoods	23.7	41.6	38.8	15.8	17.9	6.3	5.3	2.4	.5	.0	152.2
Total hardwoods	320.5	549.8	645.6	521.7	389.7	277.4	196.9	100.1	133.8	28.3	3,163.8
All species	371.7	618.3	714.4	586.9	439.4	314.0	226.6	117.5	169.6	31.5	3,589.9

Table 87.--Net volume of growing-stock trees on timberland by species and diameter class, North-central Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	23.8	31.4	27.5	28.5	25.1	19.4	16.3	16.4	28.2	2.6	219.2	15.8
Virginia pine	3.4	5.5	6.1	3.8	.9	.4	.0	.0	.0	.0	20.0	52.2
Other yellow pines	5.5	6.9	10.8	6.3	3.7	3.6	.4	.0	.0	.0	37.3	26.5
Eastern hemlock	29.2	43.3	44.0	52.6	49.6	39.2	18.9	13.0	22.4	1.4	313.5	12.1
Other softwoods	7.1	5.8	1.3	.4	2.4	.4	.0	.0	.0	.0	17.4	30.7
Total softwoods	69.0	92.9	89.6	91.5	81.7	63.0	35.6	29.4	50.6	4.0	607.3	9.3
Red maple	114.8	171.5	183.4	138.2	125.2	76.6	35.7	31.7	23.3	2.9	903.2	5.3
Sugar maple	13.6	28.5	26.2	38.2	34.8	23.3	13.0	8.7	10.5	2.7	199.3	14.4
Yellow birch	5.3	13.9	9.7	7.2	7.1	3.0	2.1	.3	.0	.0	48.6	21.1
Sweet birch	25.0	43.7	51.7	28.8	20.8	10.9	6.8	.9	.6	.0	189.2	12.0
Hickory	1.9	7.5	16.5	12.5	15.3	5.1	4.9	3.8	.4	.0	67.8	15.9
Beech	8.8	14.5	16.7	13.1	15.6	19.0	9.1	10.0	14.5	2.3	123.5	17.0
White ash	4.1	9.5	9.8	16.0	19.1	11.3	8.9	8.1	7.1	2.4	96.4	17.7
Black walnut	.0	.0	.0	.6	.7	.0	.4	.0	.0	.0	1.8	86.5
Yellow-poplar	.5	3.2	6.0	8.6	10.0	12.7	8.1	7.0	3.9	.0	59.9	20.9
Blackgum	4.7	3.6	2.8	.3	2.0	2.3	.0	.0	1.1	.0	16.7	22.3
Aspen	10.2	11.3	8.6	7.0	.7	.7	.0	.0	.0	.0	38.6	22.3
Black cherry	17.6	37.3	55.3	64.4	60.6	39.4	22.7	14.5	12.8	2.2	326.7	11.1
Chestnut oak	19.0	56.1	78.9	66.8	45.5	39.7	19.1	11.2	11.6	.0	347.8	9.0
Northern red oak	16.1	32.3	52.1	68.4	61.8	54.0	38.8	40.3	50.7	8.1	422.6	7.6
Select white oaks	23.9	49.1	74.7	61.1	52.4	30.7	26.9	16.1	21.4	5.6	362.0	8.3
Other oaks	6.5	17.9	32.1	31.8	33.2	24.5	17.1	9.1	14.9	2.2	189.3	10.0
Black locust	2.8	1.9	2.6	2.3	1.5	2.7	.0	.5	1.3	.0	15.5	40.1
Basswood	1.0	3.5	6.6	9.5	11.7	4.8	2.9	1.4	2.0	.0	43.4	29.9
Other hardwoods	17.2	34.7	33.1	20.1	14.7	10.6	5.9	1.4	5.8	.0	143.4	14.3
Total hardwoods	292.9	540.2	666.8	594.8	532.6	371.2	222.3	165.0	181.8	28.4	3,595.9	2.6
All species	361.8	633.2	756.4	686.3	614.3	434.3	257.8	194.4	232.4	32.4	4,203.3	2.4
SE	4.6	4.0	3.4	3.5	4.3	5.4	6.4	7.2	8.3	16.3	2.4	

Table 88.--Net volume of sawtimber trees on timberland by species and diameter class, North-central Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	66.5	46.2	50.5	46.5	74.9	31.1	99.7	15.4	430.9
Eastern hemlock	106.4	151.0	140.7	95.1	48.7	47.4	62.5	.0	651.8
Other softwoods	33.5	49.9	11.1	17.7	.0	.0	.0	.0	112.2
Total softwoods	206.4	247.1	202.4	159.3	123.6	78.5	162.3	15.4	1,194.9
Red maple	-	425.6	246.2	176.4	164.6	61.3	68.6	7.3	1,150.0
Sugar maple	-	130.6	120.0	74.3	22.5	15.2	27.4	12.5	402.6
Yellow birch	-	43.2	10.3	15.6	12.6	.0	6.0	.0	87.7
Sweet birch	-	54.3	47.2	26.9	2.0	4.6	1.4	.0	136.4
Hickory	-	81.0	40.4	23.9	18.9	.0	19.0	.0	183.1
Beech	-	45.9	81.9	51.2	31.1	24.1	41.8	63.2	339.2
White ash	-	66.9	43.5	35.0	49.9	8.2	15.4	6.7	225.7
Yellow-poplar	-	31.4	37.2	35.3	22.9	24.4	29.9	.0	181.1
Blackgum	-	.0	3.1	4.7	.0	.0	2.9	.0	10.6
Black cherry	-	166.7	152.8	128.6	67.2	32.3	31.5	.0	579.2
Chestnut oak	-	201.1	180.8	126.9	76.8	56.2	34.4	.0	676.1
Northern red oak	-	216.6	197.5	219.5	204.7	127.1	287.8	74.6	1,327.8
Select white oaks	-	223.3	212.6	140.8	156.8	83.9	85.8	.0	903.1
Other oaks	-	160.4	142.1	159.5	90.6	38.9	87.3	18.5	697.4
Basswood	-	44.8	26.8	11.4	3.7	5.7	.0	.0	92.4
Other hardwoods	-	50.8	65.5	25.1	21.9	9.5	2.0	.0	174.8
Total hardwoods	-	1,942.5	1,608.0	1,255.2	946.2	491.6	741.2	182.8	7,167.4
All species	206.4	2,189.5	1,810.4	1,414.5	1,069.8	570.0	903.5	198.2	8,362.3

Table 89.--Net volume of sawtimber trees on timberland by species and diameter class, North-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	92.1	115.0	114.6	91.0	79.2	84.5	151.5	14.6	742.4	14.6
Virginia pine	18.7	14.7	3.5	1.7	.0	.0	.0	.0	38.5	55.7
Other yellow pines	34.3	25.1	15.7	15.9	1.8	.0	.0	.0	92.9	22.0
Eastern hemlock	134.1	196.3	202.2	171.8	84.4	59.4	108.6	6.7	963.6	13.3
Other softwoods	4.0	1.8	8.1	1.6	.0	.0	.0	.0	15.5	59.2
Total softwoods	283.2	352.8	344.2	282.0	165.4	143.9	260.1	21.3	1,853.0	9.8
Red maple	-	525.9	533.6	347.7	166.5	157.8	128.3	18.3	1,878.1	7.8
Sugar maple	-	145.2	147.8	102.3	63.0	42.2	52.4	16.9	569.8	17.8
Yellow birch	-	27.2	30.4	13.9	9.5	.8	.0	.0	81.8	26.9
Sweet birch	-	107.7	86.2	47.6	29.3	3.9	3.0	.0	277.7	14.9
Hickory	-	50.5	67.5	23.0	25.6	19.7	1.7	.0	188.0	18.6
Beech	-	51.1	67.9	87.5	50.9	49.5	78.3	17.0	402.3	21.3
White ash	-	62.9	81.5	53.4	44.9	41.0	34.5	14.2	332.4	21.3
Black walnut	-	2.8	3.4	.0	1.5	.0	.0	.0	7.7	87.1
Yellow-poplar	-	31.5	44.3	60.4	38.5	36.0	19.6	.0	230.2	21.3
Blackgum	-	1.0	8.7	11.5	.0	.0	5.3	.0	26.5	41.5
Aspen	-	28.4	2.7	3.4	.0	.0	.0	.0	34.6	33.0
Black cherry	-	247.5	267.1	184.7	114.0	80.2	71.8	15.1	980.4	14.4
Chestnut oak	-	250.2	182.7	168.4	85.2	51.4	59.7	.0	797.6	10.7
Northern red oak	-	256.7	256.3	238.1	179.1	194.8	263.7	49.3	1,438.0	9.0
Select white oaks	-	242.0	224.7	140.1	133.1	79.3	117.7	34.5	971.4	8.9
Other oaks	-	119.4	138.1	106.7	78.0	44.8	82.6	14.0	583.7	10.8
Black locust	-	9.1	7.5	12.7	.0	2.5	5.7	.0	37.5	55.0
Basswood	-	30.4	47.5	20.5	13.5	7.3	10.5	.0	129.8	25.9
Other hardwoods	-	81.7	65.9	52.0	29.4	8.2	35.5	.0	272.8	19.3
Total hardwoods	-	2,271.2	2,263.6	1,673.9	1,062.0	819.6	970.4	179.4	9,240.1	3.8
All species	283.2	2,624.0	2,607.8	1,955.9	1,227.5	963.5	1,230.5	200.7	11,093.1	3.4
SE	10.6	3.5	4.4	5.4	6.6	7.1	8.3	16.7	3.4	

Table 90.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, North-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	49.8	62.1	165.1	143.8	420.8	66.4	116.0	333.6	226.4	742.4
Virginia pine	.0	.0	1.7	-	1.7	2.2	.3	36.0	-	38.5
Other yellow pines	1.8	3.7	12.2	-	17.7	10.0	11.2	71.7	-	92.9
Eastern hemlock	431.0	-	-	-	431.0	963.6	-	-	-	963.6
Other softwoods	1.6	-	-	-	1.6	15.5	-	-	-	15.5
Total softwoods	484.3	65.8	178.9	143.8	872.8	1,057.7	127.6	441.3	226.4	1,853.0
Red maple	37.3	90.3	405.5	285.5	818.6	40.2	160.2	940.7	737.0	1,878.1
Sugar maple	45.3	35.4	80.3	115.9	276.8	54.2	52.1	199.0	264.4	569.8
Yellow birch	.1	.1	10.4	13.7	24.2	.6	1.8	42.9	36.4	81.8
Sweet birch	2.1	5.4	46.8	29.6	83.8	3.7	11.7	128.6	133.7	277.7
Hickory	9.5	18.5	18.4	23.6	70.0	9.5	38.3	79.7	60.5	188.0
Beech	11.3	22.5	106.7	142.7	283.3	12.2	30.0	147.9	212.2	402.3
White ash	46.6	56.2	51.5	33.8	188.0	49.4	90.1	123.4	69.5	332.4
Black walnut	.0	.0	.0	1.4	1.5	.0	1.6	4.0	2.0	7.7
Yellow-poplar	45.3	25.7	56.1	27.3	154.4	45.3	45.3	85.9	53.7	230.2
Blackgum	1.9	6.2	5.4	3.3	16.9	1.9	9.1	11.4	4.0	26.5
Aspen	.0	.0	.1	3.4	3.4	.0	.0	16.2	18.3	34.6
Black cherry	108.7	102.7	169.6	84.9	465.9	111.9	213.7	456.9	197.9	980.4
Chestnut oak	16.0	60.1	141.5	147.1	364.7	16.0	96.8	368.8	315.9	797.6
Northern red oak	160.3	275.4	300.8	188.5	924.9	165.7	344.9	589.3	338.1	1,438.0
Select white oaks	74.4	106.6	157.8	165.9	504.7	77.3	168.7	390.1	335.4	971.4
Other oaks	35.9	54.0	111.4	124.9	326.2	35.9	76.7	214.0	257.2	583.7
Black locust	.0	9.9	7.8	3.2	21.0	.0	9.9	19.8	7.9	37.5
Basswood	4.9	15.5	26.0	5.4	51.9	9.5	23.1	69.9	27.2	129.8
Other hardwoods	16.3	23.2	50.9	34.9	125.2	16.3	29.9	111.5	115.1	272.8
Total hardwoods	615.8	907.5	1,747.2	1,434.8	4,705.3	649.6	1,404.0	4,000.0	3,186.5	9,240.1
Percent of hardwood in each grade	13	19	37	31	100	7	15	43	35	100

Table 91.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, North-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	127.7	74.4	90.2	51.8	76.7	420.8	164.5	159.3	228.2	94.2	96.3	742.4
Virginia pine	.0	.0	1.7	-	.0	1.7	4.2	.0	19.2	-	15.2	38.5
Other yellow pines	3.5	7.1	1.9	-	5.3	17.7	18.9	20.2	44.2	-	9.6	92.9
Eastern hemlock	264.8	-	-	-	166.2	431.0	650.2	-	-	-	313.4	963.6
Other softwoods	1.6	-	-	-	.0	1.6	10.4	-	-	-	5.2	15.5
Total softwoods	397.6	81.4	93.7	51.8	248.2	872.8	848.1	179.5	291.6	94.2	439.6	1,853.0
Red maple	50.3	117.7	253.0	241.7	155.8	818.6	50.3	219.2	779.7	613.9	215.1	1,878.1
Sugar maple	18.7	41.2	48.5	98.9	69.6	276.8	18.7	59.2	172.2	231.2	88.5	569.8
Yellow birch	.0	.0	4.1	13.4	6.8	24.2	.0	.0	33.8	34.1	13.9	81.8
Sweet birch	2.2	6.0	30.3	27.2	18.0	83.8	2.2	10.1	115.9	125.3	24.3	277.7
Hickory	19.1	16.3	9.6	16.0	9.1	70.0	19.1	42.2	75.9	36.9	14.0	188.0
Beech	11.8	35.7	45.0	129.1	61.7	283.3	11.8	47.9	81.2	195.8	65.6	402.3
White ash	73.9	52.6	20.2	21.0	20.3	188.0	73.9	93.4	101.7	36.8	26.5	332.4
Black walnut	.0	.0	.0	1.5	.0	1.5	.0	2.4	2.8	1.5	1.0	7.7
Yellow-poplar	80.4	28.8	33.1	12.1	.0	154.4	80.4	58.6	61.1	29.1	1.0	230.2
Blackgum	3.1	8.3	3.2	2.3	.0	16.9	3.1	12.6	5.9	2.3	2.6	26.5
Aspen	.0	.0	.0	3.4	.0	3.4	.0	.0	18.4	15.7	.4	34.6
Black cherry	156.2	157.7	80.5	34.4	37.0	465.9	156.2	318.4	371.4	82.7	51.7	980.4
Chestnut oak	22.1	81.8	138.4	86.8	35.6	364.7	22.1	127.2	397.1	203.9	47.2	797.6
Northern red oak	205.5	359.0	198.2	113.3	49.0	924.9	205.5	460.6	489.9	224.5	57.6	1,438.0
Select white oaks	98.6	155.4	132.2	80.4	38.2	504.7	98.6	245.2	402.5	177.6	47.5	971.4
Other oaks	58.3	75.2	94.5	65.3	32.9	326.2	58.3	109.0	226.4	150.7	39.3	583.7
Black locust	.0	14.8	4.5	1.6	.0	21.0	.0	14.8	14.9	4.7	3.2	37.5
Basswood	9.9	21.4	16.0	2.7	2.0	51.9	9.9	39.5	47.8	21.4	11.3	129.8
Other hardwoods	26.2	26.2	35.6	26.8	10.4	125.2	26.2	33.6	97.5	98.6	16.9	272.8
Total hardwoods	836.2	1,198.0	1,146.9	977.8	546.3	4,705.3	836.2	1,893.7	3,495.9	2,286.7	727.5	9,240.1
All species	1,233.9	1,279.5	1,240.6	1,029.6	794.6	5,578.1	1,684.3	2,073.2	3,787.5	2,380.9	1,167.2	11,093.1

Table 92.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, North-central Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	1,242	6,881	1,401	3,140	30,414	5,640
Eastern hemlock	1,047	9,211	1,900	3,741	31,904	5,592
Other softwoods	816	2,518	437	1,710	3,014	238
Total softwoods	3,105	18,611	3,737	8,591	65,332	11,470
Red maple	5,044	28,216	5,887	5,355	77,032	16,310
Sugar maple	1,603	4,752	1,889	4,233	18,628	4,591
Yellow birch	286	787	791	521	1,019	1,347
Sweet birch	1,415	4,812	1,100	1,792	13,186	1,658
Hickory	388	998	797	1,119	4,003	3,385
Beech	318	1,839	641	1,268	8,039	2,626
White ash	630	2,931	1,765	1,261	15,236	6,317
Yellow-poplar	1,302	1,449	1,335	1,460	11,817	7,471
Blackgum	20	690	43	0	1,545	198
Black cherry	1,471	9,871	4,062	1,269	47,902	14,150
Chestnut oak	4,407	3,497	3,289	10,167	17,707	8,209
Northern red oak	3,325	10,593	10,840	11,143	55,716	47,404
Select white oaks	2,788	4,948	6,192	4,356	26,199	21,078
Other oaks	4,476	792	5,703	10,276	10,417	19,757
Basswood	380	711	370	319	4,051	934
Other hardwoods	2,775	6,404	2,245	3,527	15,914	1,404
Total hardwoods	30,628	83,292	46,949	58,067	328,413	156,838
All species	33,734	101,903	50,686	66,658	393,745	168,308

[a] Mortality is a component of net growth.

SOUTH-CENTRAL UNIT TABLES

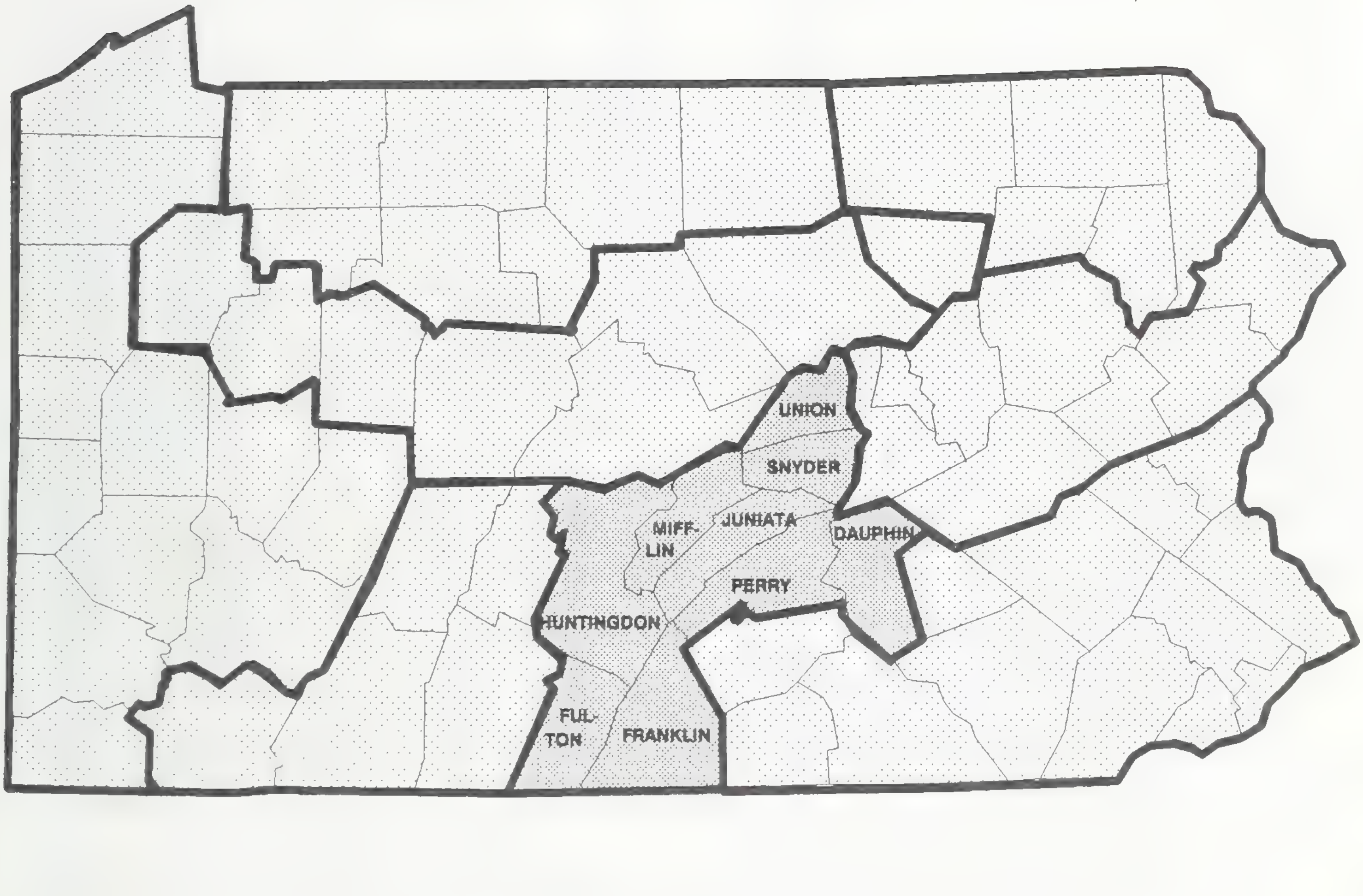

Table 93.--Area of timberland by forest type, forest-type group, and stand-size class, South-central Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	.0	4.5	.0	.0	4.5	100.0
White pine	15.4	6.0	5.3	.0	26.8	44.8
Hemlock	16.4	4.4	.0	.0	20.8	50.5
Scotch pine	5.8	9.9	.0	.0	15.8	58.1
White/red pine group	37.6	24.9	5.3	.0	67.8	27.9
Norway spruce	3.5	.0	.0	.0	3.5	100.0
Spruce/fir group	3.5	.0	.0	.0	3.5	100.0
Virginia pine	5.4	10.9	.0	.0	16.3	57.8
Eastern redcedar	.0	.0	4.8	.0	4.8	100.0
Loblolly/shortleaf group	5.4	10.9	4.8	.0	21.1	50.1
Wh. pine/no. red oak/wh. ash	27.6	10.6	.0	.0	38.2	37.1
Virginia pine/oak	6.8	16.5	.0	.0	23.4	50.3
Other oak/pine	.0	10.8	.0	.0	10.8	70.7
Oak/pine group	34.5	37.9	.0	.0	72.4	27.0
Post, black, or bear oak	16.4	.0	.0	.0	16.4	57.8
Chestnut oak	110.7	60.2	34.5	.0	205.3	15.7
White oak/red oak/hickory	32.6	13.1	.0	.0	45.7	35.4
White oak	14.0	16.1	.0	.0	30.0	40.6
Northern red oak	40.2	10.8	10.7	.0	61.7	29.5
Y. poplar/wh. oak/no. red oak	25.1	.0	.0	.0	25.1	42.4
Black locust	12.1	.0	5.6	.0	17.7	55.1
Black walnut	.0	5.9	3.8	.0	9.8	72.4
Hawthorn/reverting field	.0	.0	16.6	.0	16.6	57.8
Scarlet oak	5.2	5.1	5.6	.0	15.9	57.8
Red maple/central hardwoods	8.2	11.3	.0	.0	19.5	50.9
Mixed central hardwoods	432.1	200.8	83.5	.0	716.4	6.7
Oak/hickory group	696.5	323.3	160.3	.0	1,180.1	3.8
Black ash/Amer. elm/red maple	20.1	.0	.0	.0	20.1	35.8
Red maple(upland)	.0	.0	6.5	.0	6.5	100.0
River birch/sycamore	4.5	.0	.0	.0	4.5	100.0
Willow	.0	.0	5.5	.0	5.5	100.0
Elm/ash/red maple group	24.6	.0	12.0	.0	36.6	32.9
Sugar maple/beech/yellow birch	29.8	5.9	.0	.0	35.7	41.4
Black cherry	10.9	10.2	.0	.0	21.1	50.2
Red maple/northern hardwoods	21.2	25.8	11.8	.0	58.8	29.9
Pin cherry/reverting field	.0	6.8	10.2	.0	17.0	58.3
Mixed northern hardwoods	72.4	71.7	15.0	.0	159.2	17.3
Northern hardwoods group	134.4	120.5	37.0	.0	291.8	12.7
All forest types	936.5	517.4	219.5	.0	1,673.4	1.5
SE	5.1	8.4	14.9	.0	1.5	

Table 94.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, South-central Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	10,055	3,143	4,095	2,663	1,148	844	549	287
Virginia pine	653	5,528	2,870	1,594	863	373	85	0
Other yellow pines	0	1,003	1,899	950	575	189	194	96
Eastern hemlock	16,279	6,316	2,860	2,399	1,085	835	365	197
Other softwoods	2,178	523	568	168	78	56	16	10
Total softwoods	29,165	16,514	12,293	7,774	3,750	2,298	1,208	590
Red maple	80,115	33,544	12,224	7,540	4,036	1,769	1,119	395
Sugar maple	7,532	3,901	3,137	2,213	1,137	1,110	242	81
Yellow birch	0	519	812	645	232	202	29	37
Sweet birch	48,778	17,143	7,232	5,785	3,018	1,309	645	273
Hickory	17,177	5,301	2,411	2,211	1,569	881	518	276
Beech	2,035	1,315	575	144	165	56	132	58
White ash	13,980	2,509	1,777	1,544	1,379	960	637	414
Black walnut	1,053	307	817	893	385	237	215	50
Yellow-poplar	4,521	2,140	1,364	256	373	395	443	262
Blackgum	22,025	10,256	5,193	1,572	858	288	113	25
Aspen	307	0	0	0	0	0	0	0
Black cherry	23,916	4,527	2,277	1,304	1,015	350	121	150
Chestnut oak	7,272	6,365	4,715	6,749	8,344	4,920	3,011	1,633
Northern red oak	14,843	4,031	3,536	3,838	2,684	2,293	1,828	1,026
Select white oaks	6,238	978	2,915	2,367	2,345	1,756	1,138	568
Other oaks	9,844	5,406	2,805	2,835	2,943	2,490	2,074	1,068
Black locust	9,689	3,822	1,827	1,106	571	475	287	167
Basswood	2,027	1,048	693	625	304	214	188	133
Other hardwoods	31,677	6,414	2,339	1,475	1,092	598	401	192
Total hardwoods	303,031	109,525	56,651	43,104	32,450	20,304	13,143	6,808
All species	332,196	126,038	68,943	50,878	36,199	22,602	14,351	7,399
SE	7.2	7.8	5.2	4.5	4.5	4.7	5.1	6.4

Table 94.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	243	154	160	4	10,149	23,347	20.4
Virginia pine	0	0	5	0	5,790	11,971	43.1
Other yellow pines	0	0	0	0	3,903	4,906	34.9
Eastern hemlock	176	114	141	13	8,185	30,780	23.3
Other softwoods	8	0	0	0	906	3,607	42.7
Total softwoods	427	268	306	17	28,932	74,611	13.8
Red maple	137	56	54	7	27,338	140,997	8.5
Sugar maple	104	48	44	0	8,117	19,549	28.3
Yellow birch	0	0	10	0	1,967	2,487	45.0
Sweet birch	165	96	68	0	18,593	84,513	15.3
Hickory	83	59	62	14	8,086	30,564	16.1
Beech	10	10	15	0	1,165	4,515	34.0
White ash	91	102	61	21	6,985	23,475	17.6
Black walnut	53	14	4	0	2,668	4,028	25.4
Yellow-poplar	336	201	91	9	3,730	10,391	26.0
Blackgum	24	29	27	0	8,130	40,411	16.8
Aspen	0	0	0	0	0	307	100.0
Black cherry	52	17	19	5	5,311	33,754	18.9
Chestnut oak	802	350	328	18	30,871	44,508	10.6
Northern red oak	732	299	593	80	16,910	35,784	12.7
Select white oaks	383	166	247	14	11,899	19,116	19.4
Other oaks	688	333	307	37	15,580	30,830	16.1
Black locust	106	46	59	0	4,645	18,156	20.2
Basswood	124	54	39	10	2,383	5,457	32.0
Other hardwoods	166	46	124	18	6,452	44,544	13.5
Total hardwoods	4,055	1,927	2,155	234	180,831	593,387	4.8
All species	4,482	2,196	2,461	251	209,763	667,997	4.5
SE	7.7	9.9	10.4	17.2	3.0	4.5	

Table 95.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, South-central Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	SE
White and red pine	593	41	7	641	249	98	18	365	1,006	23.6
Virginia pine	329	0	0	329	144	49	0	193	522	42.4
Other yellow pines	256	81	0	337	81	24	16	121	458	69.7
Eastern hemlock	41	17	20	78	248	62	23	332	410	42.9
Other softwoods	91	0	0	91	23	0	0	23	115	100.0
Total softwoods	1,310	140	27	1,477	745	233	56	1,034	2,511	19.4
Red maple	339	43	0	381	409	236	16	662	1,043	23.8
Sugar maple	56	0	0	56	121	0	0	121	177	60.6
Yellow birch	133	0	0	133	99	0	0	99	232	55.2
Sweet birch	182	0	20	202	408	11	14	433	635	30.5
Hickory	491	115	34	639	138	98	71	307	947	32.1
Beech	0	0	0	0	0	26	0	26	26	100.0
White ash	156	17	0	173	268	19	16	303	476	39.6
Black walnut	42	0	0	42	0	16	0	16	58	77.3
Yellow-poplar	21	29	0	50	96	17	0	114	164	42.1
Blackgum	0	0	0	0	218	0	0	218	218	71.3
Black cherry	79	0	0	79	244	0	0	244	323	52.3
Chestnut oak	5,298	1,695	1,045	8,039	4,861	1,003	420	6,285	14,323	14.5
Northern red oak	2,449	582	667	3,699	455	130	62	647	4,346	17.1
Select white oaks	1,235	221	165	1,620	898	70	22	991	2,611	19.8
Other oaks	2,994	700	419	4,112	623	147	134	904	5,016	16.6
Black locust	1,183	197	83	1,463	1,214	148	113	1,475	2,938	27.1
Basswood	0	0	0	0	0	0	4	4	4	100.0
Other commercial hardwoods	661	18	51	731	649	70	87	807	1,538	25.3
Noncommercial hardwoods	727	47	11	785	1,704	119	42	1,865	2,650	19.3
Total hardwoods	16,045	3,663	2,495	22,204	12,408	2,111	1,002	15,521	37,724	7.6
All species	17,355	3,803	2,522	23,680	13,153	2,344	1,058	16,555	40,235	7.1
SE	11.0	11.8	15.0	9.4	10.0	10.6	15.2	8.4	7.1	

Table 96.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, South-central Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern redcedar	0	1	3	0	5	70.4
Larch	0	1	0	0	1	100.0
Spruce species	0	0	0	0	0	100.0
Red pine	0	0	0	0	0	100.0
Pitch pine	0	0	1	0	1	74.7
Eastern white pine	24	24	3	0	51	23.4
Virginia pine	2	4	0	0	6	59.2
Eastern hemlock	39	25	0	0	65	29.1
Maple species	0	0	0	0	0	100.0
Boxelder	31	3	2	0	36	54.4
Striped maple	167	48	12	0	227	23.2
Red maple	538	300	301	0	1,140	10.2
Silver maple	0	0	1	0	1	100.0
Sugar maple	96	46	8	0	151	31.9
Ailanthus species	9	37	8	0	53	41.6
Alder species	6	24	0	0	31	81.1
Serviceberry	81	27	29	0	137	29.3
Azalea species	3	1	0	0	4	76.8
Common pawpaw	14	0	0	0	14	100.0
Barberry	65	4	0	0	69	56.2
Yellow birch	7	1	0	0	8	68.1
Sweet birch	435	201	294	0	930	17.8
American hornbeam	23	3	0	0	26	39.3
Hickory species	75	53	26	0	154	16.4
Bitternut hickory	1	0	0	0	1	78.4
Pignut hickory	5	1	0	0	6	41.8
Shagbark hickory	0	0	0	0	0	100.0
Mockernut hickory	1	0	0	0	1	73.0
American chestnut	10	8	11	0	30	38.6
Hackberry	7	12	5	0	24	44.9
Eastern redbud	18	12	8	0	38	42.7
Sweetfern	0	0	3	0	3	100.0
Flowering dogwood	28	21	28	0	77	21.4
Alternate-leaved dogwood	0	5	0	0	5	100.0
Silky dogwood	24	0	0	0	24	18.5
Panicled dogwood	92	2	18	0	112	81.6
Hawthorn species	38	25	12	0	75	25.7
American hazelnut	58	0	0	0	58	71.7
Common persimmon	5	0	0	0	5	100.0
American beech	24	1	0	0	25	40.7
White ash	362	74	36	0	471	19.6
Green ash	0	0	0	0	0	100.0
Huckleberry	237	410	136	0	783	29.6
Witch-hazel	195	100	72	0	367	18.6
Butternut	0	0	1	0	1	79.6
Black walnut	6	5	0	0	11	46.4
Sheep laurel	0	2	47	0	50	95.4
Mountain laurel	465	521	98	0	1,084	18.3
Common spicebush	381	133	1	0	515	16.2
Sweetgum	0	0	1	0	1	100.0
Yellow-poplar	47	23	15	0	85	25.5
Bush honeysuckle	13	21	33	0	67	43.9
Cucumbertree	7	1	1	0	9	45.9
Apple species	1	0	0	0	1	81.9
Black tupelo	75	62	27	0	164	19.6
Eastern hophornbeam	61	12	7	0	79	22.6
Paulownia	0	0	2	0	2	100.0
American sycamore	3	0	0	0	3	100.0
Bigtooth aspen	0	0	0	0	0	100.0
Quaking aspen	0	0	0	0	0	100.0
Cherry species	8	0	0	0	8	70.5

Table 96.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Pin cherry	4	1	1	0	6	66.8
Black cherry	308	202	82	0	592	15.4
Chokecherry	35	0	0	0	35	19.5
White oak	68	71	10	0	148	20.6
Scarlet oak	7	35	8	0	50	35.9
Scrub, bear oak	13	18	15	0	46	44.2
Chestnut oak	189	133	159	0	481	17.9
Northern red oak	106	62	121	0	289	18.2
Black oak	65	30	39	0	134	17.8
Rhododendron species	29	0	0	0	29	46.5
Smooth sumac	3	3	3	0	9	53.2
Staghorn sumac	0	7	1	0	8	55.2
Poison sumac	0	0	1	0	1	100.0
Currant species	4	0	0	0	4	100.0
Black locust	10	9	26	0	45	35.1
Rose species	202	60	57	0	319	23.4
Rubus species	1,011	807	673	0	2,490	14.5
American elderberry	0	1	0	0	1	100.0
Sassafras	119	97	84	0	300	20.7
American basswood	13	6	4	0	24	34.7
American elm	22	10	5	0	37	44.2
Slippery elm	51	26	23	0	101	27.8
Blueberry	1,502	1,854	1,193	0	4,549	12.1
Viburnum species	71	2	0	0	73	55.7
Maple-leaved viburnum	395	16	18	0	429	41.2
Arrowwood	2	7	0	0	9	79.8
Blackhaw	24	0	1	0	25	76.4
Common prickly ash	3	0	0	0	3	100.0
Unknown deciduous shrub	15	45	83	0	143	49.4
Unknown evergreen shrub	0	0	2	0	2	100.0
Unknown tree	29	1	6	0	36	55.4
All species	8,088	5,762	3,869	0	17,719	5.5
SE	8.5	12.4	20.0	.0	5.5	

Table 97.--Net dry weight[a] of all trees on timberland by class of material and species group, South-central Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	2,645	29,109	31,755	4.4
Upper stem	321	6,692	7,013	4.0
Total sawtimber trees	2,967	35,801	38,768	4.3
Poletimber trees	1,241	17,541	18,782	3.6
All growing stock	4,208	53,342	57,550	3.3
Rough cull trees[b]	167	2,916	3,083	9.4
Rotten cull trees[b]	17	960	977	14.6
Salvable dead trees[c]	71	2,986	3,057	12.6
Saplings[c]	550	6,071	6,621	6.2
Tops - growing stock	1,514	18,587	20,102	3.1
Tops - rough and rotten	59	1,381	1,440	7.9
All nongrowing stock	2,377	32,901	35,279	2.7
All classes	6,585	86,243	92,829	2.8
SE	10.2	3.0	2.8	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 98.--Net volume of all trees on timberland by class of timber and species group, South-central Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	100.0	58.2	254.1	782.7	1,195.0	4.6
Upper stem	12.4	6.8	59.4	185.0	263.7	4.2
Total sawtimber trees	112.4	65.0	313.5	967.7	1,458.6	4.5
Poletimber trees	50.8	21.7	240.5	492.5	805.4	3.8
Total growing-stock trees	163.2	86.6	554.0	1,460.2	2,264.1	3.4
Rough trees:						
Sawtimber size	2.3	1.6	12.8	19.4	36.0	11.9
Poletimber size	.9	.1	20.2	16.6	37.8	13.3
Total rough trees	3.2	1.7	32.9	36.1	73.9	9.5
Rotten trees:						
Sawtimber size	.2	.1	5.8	10.8	17.0	17.7
Poletimber size	.5	.0	1.8	2.1	4.4	22.4
Total rotten trees	.8	.1	7.6	12.9	21.4	15.3
Salvable dead[a] trees:						
Sawtimber size	1.0	.9	1.0	38.9	41.8	17.4
Poletimber size	.4	.2	4.2	26.5	31.4	14.4
Total salvable dead trees	1.4	1.1	5.2	65.4	73.2	12.5
All classes	168.6	89.6	599.7	1,574.6	2,432.5	3.2
SE	13.2	16.8	6.4	4.0	3.2	

[a] Includes noncommercial species.

Table 99.--Net volume of growing-stock trees on timberland by species and diameter class, South-central Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	4.8	6.5	5.7	12.3	6.1	6.2	7.3	4.3	4.7	.0	57.8
Eastern hemlock	8.1	8.7	8.8	8.9	4.2	8.2	5.1	2.7	4.7	1.6	60.9
Other softwoods	5.6	10.1	8.5	4.4	3.0	1.3	.0	.0	.0	.0	32.9
Total softwoods	18.5	25.3	23.0	25.5	13.3	15.7	12.4	6.9	9.4	1.6	151.7
Red maple	19.7	26.8	29.5	16.3	17.1	3.7	1.7	.0	3.6	.6	119.0
Sugar maple	7.7	10.9	15.1	8.9	4.6	1.9	.0	.9	3.1	.0	53.0
Yellow birch	1.1	3.5	2.4	2.3	.7	.9	.0	.0	.0	.0	11.0
Sweet birch	16.5	23.5	20.8	10.9	8.4	3.9	9.9	3.4	.6	.0	97.9
Hickory	6.3	14.9	19.6	16.6	7.4	10.9	1.8	6.0	3.9	.0	87.5
Beech	.7	.2	.8	4.0	1.7	.0	1.0	.9	1.4	.0	10.7
White ash	8.4	17.5	12.1	18.7	11.4	11.0	5.6	3.0	3.3	2.4	93.4
Yellow-poplar	1.5	3.6	8.6	10.5	14.3	11.4	6.7	6.4	3.3	.9	67.3
Blackgum	5.8	4.3	4.2	2.5	.6	.5	3.7	.6	2.1	.0	24.3
Black cherry	3.2	5.7	4.5	2.6	.0	2.2	.0	1.1	.0	.0	19.5
Chestnut oak	25.6	68.8	112.1	75.7	85.8	52.6	37.0	19.5	19.5	.7	497.3
Northern red oak	12.6	25.8	36.4	46.7	42.1	35.5	24.3	31.0	30.9	10.8	295.9
Select white oaks	11.7	26.0	30.0	25.7	24.2	15.0	15.5	9.5	16.1	1.5	175.1
Other oaks	8.3	25.5	55.3	52.9	44.9	35.2	22.7	19.5	10.9	.9	276.0
Basswood	1.0	3.5	2.3	2.5	6.6	4.3	2.4	.9	6.7	.8	30.9
Other hardwoods	11.5	18.5	26.4	16.9	16.2	10.7	7.1	4.8	7.6	1.4	121.0
Total hardwoods	141.5	279.0	380.1	313.9	285.8	199.7	139.3	107.6	113.0	20.0	1,979.9
All species	160.1	304.4	403.1	339.4	299.1	215.4	151.7	114.5	122.4	21.6	2,131.6

Table 100.--Net volume of growing-stock trees on timberland by species and diameter class, South-central Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	10.8	15.3	12.7	14.1	13.9	9.1	10.4	8.8	13.6	.6	109.3	16.6
Virginia pine	7.3	8.2	8.2	5.0	1.7	.0	.0	.0	.2	.0	30.4	28.4
Other yellow pines	4.6	4.8	5.3	2.4	3.6	2.8	.0	.0	.0	.0	23.4	27.4
Eastern hemlock	6.4	13.1	10.8	12.5	8.1	6.2	7.3	5.7	9.7	2.1	81.9	17.4
Other softwoods	1.4	.8	.9	1.0	.2	.4	.3	.0	.0	.0	4.8	71.8
Total softwoods	30.4	42.1	37.9	35.0	27.5	18.4	18.0	14.5	23.5	2.7	249.9	10.9
Red maple	28.7	42.7	43.5	29.0	25.5	12.7	5.3	2.3	4.1	.8	194.6	8.3
Sugar maple	8.8	14.9	14.1	19.6	5.6	2.5	4.6	2.5	3.1	.0	75.7	27.4
Yellow birch	1.8	3.9	2.2	2.8	.7	1.1	.0	.0	.4	.0	13.0	45.1
Sweet birch	17.9	35.0	32.1	21.1	14.1	7.7	5.4	4.3	3.3	.0	140.8	11.7
Hickory	5.8	12.6	17.6	14.6	12.0	9.1	3.4	3.2	4.3	1.7	84.4	12.9
Beech	.8	.8	1.9	1.1	3.8	2.1	.5	.6	1.3	.0	13.0	25.7
White ash	4.7	9.8	15.3	16.1	15.3	13.1	3.5	6.2	3.9	2.9	90.8	13.9
Black walnut	1.8	4.5	3.6	3.5	4.3	1.4	1.9	.7	.2	.0	22.0	25.5
Yellow-poplar	4.2	2.0	4.5	9.0	14.4	11.6	18.1	14.4	7.6	1.4	87.2	18.3
Blackgum	10.0	8.3	8.8	4.4	2.3	.5	.7	1.6	2.0	.0	38.6	14.8
Black cherry	6.0	7.5	10.8	5.9	3.2	4.4	1.9	.9	1.2	.4	42.2	21.7
Chestnut oak	10.5	37.1	79.2	73.4	61.4	44.0	27.1	14.8	17.3	1.5	366.4	8.0
Northern red oak	9.1	22.1	30.7	40.3	43.6	32.8	29.2	15.2	42.9	10.6	276.4	8.4
Select white oaks	8.2	14.3	25.5	29.2	26.1	18.5	14.9	8.8	17.4	1.8	164.7	12.5
Other oaks	6.6	18.5	33.9	43.3	49.0	34.9	28.3	18.4	22.9	4.9	260.7	10.4
Black locust	4.5	6.5	5.6	7.4	5.9	4.2	3.7	1.9	3.5	.0	43.2	24.7
Basswood	1.3	3.9	2.8	3.8	4.7	4.4	5.6	2.6	2.9	1.3	33.2	25.9
Other hardwoods	5.5	8.5	11.6	9.7	9.0	5.1	6.4	1.7	7.8	2.2	67.5	16.1
Total hardwoods	136.2	253.0	343.7	334.3	300.8	210.0	160.5	100.2	146.1	29.3	2,014.2	3.5
All species	166.6	295.1	381.6	369.3	328.3	228.4	178.5	114.7	169.5	32.1	2,264.1	3.4
SE	5.5	4.7	4.8	5.0	5.3	6.8	7.9	10.4	11.5	17.1	3.4	

Table 101.--Net volume of sawtimber trees on timberland by species and diameter class, South-central Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	20.4	58.2	31.5	33.8	42.3	25.0	29.3	.0	240.6
Eastern hemlock	28.6	34.7	19.8	38.4	25.0	15.0	25.4	10.5	197.4
Other softwoods	22.5	14.3	10.6	5.1	.0	.0	.0	.0	52.5
Total softwoods	71.6	107.2	61.9	77.2	67.3	40.1	54.7	10.5	490.4
Red maple	-	51.8	65.4	12.4	7.3	.0	16.0	3.4	156.2
Sugar maple	-	46.6	29.8	9.5	.0	7.9	23.3	.0	117.1
Yellow birch	-	1.9	.5	.7	.0	.0	.0	.0	3.2
Sweet birch	-	35.7	30.6	16.4	40.7	13.0	3.2	.0	139.5
Hickory	-	59.8	28.8	47.9	9.0	29.4	22.5	.0	197.4
Beech	-	14.2	6.6	.0	4.8	3.2	7.8	.0	36.6
White ash	-	67.1	47.6	50.5	26.6	16.3	19.6	13.6	241.2
Yellow-poplar	-	39.4	63.5	57.0	34.0	31.9	20.2	6.6	252.6
Blackgum	-	5.6	1.6	1.3	11.6	2.1	7.2	.0	29.4
Black cherry	-	10.3	.0	8.9	.0	5.7	.0	.0	24.9
Chestnut oak	-	257.9	322.1	218.8	162.2	83.1	94.2	3.2	1,141.4
Northern red oak	-	152.8	162.1	148.5	104.3	145.4	147.2	57.3	917.6
Select white oaks	-	96.8	107.7	70.6	80.8	51.3	97.0	10.7	515.1
Other oaks	-	176.6	172.2	146.9	100.5	91.1	55.3	4.4	747.0
Basswood	-	6.8	24.1	16.9	10.4	3.8	34.0	3.6	99.5
Other hardwoods	-	54.6	64.4	46.6	33.0	23.2	37.4	8.5	267.8
Total hardwoods	-	1,078.1	1,126.7	852.8	625.0	507.5	584.8	111.4	4,886.4
All species	71.6	1,185.3	1,188.6	930.0	692.3	547.6	639.5	121.9	5,376.8

Table 102.--Net volume of sawtimber trees on timberland by species and diameter class, South-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	39.4	55.0	61.7	43.2	50.1	46.5	75.7	3.5	375.1	18.3
Virginia pine	25.0	18.0	6.6	.0	.0	.0	1.0	.0	50.6	32.4
Other yellow pines	16.2	8.8	13.7	12.0	.0	.0	.0	.0	50.7	32.1
Eastern hemlock	30.6	44.5	31.8	25.8	33.4	26.5	49.4	11.7	253.7	19.5
Other softwoods	2.7	3.5	.4	1.5	1.4	.0	.0	.0	9.5	89.0
Total softwoods	113.9	129.7	114.1	82.5	84.9	73.0	126.1	15.2	739.5	13.5
Red maple	-	103.5	102.2	55.6	24.3	10.7	19.9	5.3	321.4	12.6
Sugar maple	-	70.4	24.5	10.7	22.1	12.7	16.6	.0	157.0	31.3
Yellow birch	-	12.1	3.3	5.0	.0	.0	2.0	.0	22.4	45.9
Sweet birch	-	80.0	55.0	33.4	22.3	18.3	14.0	.0	223.1	15.9
Hickory	-	53.3	53.2	41.3	14.7	17.1	22.7	10.8	213.0	15.1
Beech	-	4.6	18.0	8.4	2.4	3.8	6.1	.0	43.3	30.8
White ash	-	59.1	61.1	55.0	15.0	31.8	19.6	17.1	258.9	16.0
Black walnut	-	13.4	17.1	5.9	7.2	3.8	.7	.0	48.0	29.4
Yellow-poplar	-	33.8	63.9	53.4	89.6	72.2	43.3	8.9	365.2	19.8
Blackgum	-	15.2	8.8	1.6	3.1	7.3	9.8	.0	45.6	21.7
Black cherry	-	23.3	13.8	19.9	9.3	3.8	5.8	1.8	77.6	29.7
Chestnut oak	-	257.9	237.1	177.5	114.0	67.3	76.5	8.2	938.5	8.7
Northern red oak	-	146.3	178.8	140.0	132.0	70.9	218.8	56.8	943.6	9.8
Select white oaks	-	109.1	111.0	84.6	69.8	44.1	89.8	11.4	519.7	14.4
Other oaks	-	154.1	193.6	147.9	127.3	85.5	113.0	28.2	849.7	11.9
Black locust	-	25.9	22.0	17.8	18.3	10.4	17.4	.0	111.8	32.6
Basswood	-	14.5	18.0	19.6	25.0	12.8	14.9	8.1	113.0	29.8
Other hardwoods	-	34.5	35.5	21.8	29.7	7.6	40.3	13.9	183.2	21.1
Total hardwoods	-	1,211.1	1,216.8	899.4	725.9	480.1	731.2	170.5	5,435.0	4.8
All species	113.9	1,340.8	1,330.9	981.9	810.9	553.1	857.2	185.7	6,174.5	4.7
SE	15.3	5.1	5.5	6.8	8.1	10.3	11.5	17.7	4.7	

Table 103.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, South-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	39.6	42.8	96.1	40.6	219.1	50.6	78.9	175.4	70.3	375.1
Virginia pine	.0	.0	1.0	-	1.0	.0	2.3	48.2	-	50.6
Other yellow pines	.9	3.1	8.0	-	12.0	2.2	9.4	39.1	-	50.7
Eastern hemlock	146.8	-	-	-	146.8	253.7	-	-	-	253.7
Other softwoods	2.8	-	-	-	2.8	9.5	-	-	-	9.5
Total softwoods	190.1	46.0	105.0	40.6	381.7	315.9	90.7	262.7	70.3	739.5
Red maple	1.1	12.8	69.6	32.2	115.7	1.1	17.8	190.4	112.1	321.4
Sugar maple	7.5	8.2	33.8	12.6	62.1	9.1	11.7	95.0	41.2	157.0
Yellow birch	.0	1.5	5.3	.2	7.0	.2	3.0	13.3	5.8	22.4
Sweet birch	.7	7.6	55.3	24.5	88.1	2.3	13.7	136.6	70.5	223.1
Hickory	3.4	37.3	40.3	25.4	106.5	3.4	52.2	97.8	59.7	213.0
Beech	.0	.0	3.7	16.9	20.7	.2	1.6	13.1	28.4	43.3
White ash	29.4	47.3	43.9	18.1	138.7	29.4	69.2	105.7	54.6	258.9
Black walnut	.0	6.3	6.5	4.7	17.6	.0	11.5	24.8	11.6	48.0
Yellow-poplar	87.6	63.3	75.0	41.5	267.4	87.6	87.6	119.9	70.0	365.2
Blackgum	.0	6.4	10.7	4.6	21.7	.0	9.5	26.6	9.5	45.6
Black cherry	.0	5.7	23.6	11.2	40.5	.0	10.9	48.7	18.0	77.6
Chestnut oak	25.0	120.7	172.5	125.3	443.5	25.0	171.6	468.7	273.1	938.5
Northern red oak	143.5	194.3	189.3	91.4	618.5	147.0	251.9	385.3	159.3	943.6
Select white oaks	56.9	73.8	95.9	73.0	299.7	56.9	107.4	215.3	140.1	519.7
Other oaks	100.5	148.3	152.5	100.8	502.0	101.6	198.4	315.1	234.7	849.7
Black locust	1.1	4.2	48.1	10.5	63.9	1.1	7.7	79.7	23.3	111.8
Basswood	5.0	31.5	35.3	8.7	80.5	5.0	36.8	59.2	11.9	113.0
Other hardwoods	5.6	26.2	42.3	39.1	113.2	5.6	35.1	78.4	64.1	183.2
Total hardwoods	467.4	795.6	1,103.6	640.6	3,007.1	475.5	1,097.8	2,473.8	1,387.9	5,435.0
Percent of hardwood in each grade	16	26	37	21	100	9	20	45	26	100

Table 104.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, South-central Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	101.7	46.9	49.9	9.8	10.8	219.1	128.7	106.8	108.0	17.8	13.9	375.1
Virginia pine	.0	.0	.0	-	1.0	1.0	.0	4.8	41.8	-	4.0	50.6
Other yellow pines	1.7	6.2	4.2	-	.0	12.0	4.2	17.9	26.0	-	2.5	50.7
Eastern hemlock	90.9	-	-	-	55.9	146.8	161.3	-	-	-	92.4	253.7
Other softwoods	2.8	-	-	-	.0	2.8	8.4	-	-	-	1.1	9.5
Total softwoods	197.1	53.1	54.0	9.8	67.7	381.7	302.5	129.4	175.8	17.8	114.0	739.5
Red maple	1.9	18.5	43.4	26.1	25.8	115.7	1.9	26.0	156.4	88.7	48.4	321.4
Sugar maple	8.3	8.5	34.3	6.5	4.4	62.1	8.3	10.4	104.6	26.1	7.7	157.0
Yellow birch	.0	2.0	1.4	.0	3.6	7.0	.0	3.8	8.5	5.1	4.9	22.4
Sweet birch	.0	9.3	34.9	21.8	22.2	88.1	.0	14.2	114.5	63.4	31.0	223.1
Hickory	4.6	43.3	27.9	13.4	17.3	106.5	4.6	59.3	93.1	32.5	23.4	213.0
Beech	.0	.0	2.6	17.1	1.0	20.7	.0	2.6	11.9	27.8	1.0	43.3
White ash	44.5	48.5	21.2	6.9	17.6	138.7	44.5	74.3	90.6	26.8	22.6	258.9
Black walnut	.0	9.4	2.8	3.8	1.5	17.6	.0	17.2	18.6	7.8	4.5	48.0
Yellow-poplar	162.0	69.9	15.1	16.7	3.7	267.4	162.0	115.0	52.3	32.2	3.7	365.2
Blackgum	.0	9.5	4.5	3.4	4.2	21.7	.0	12.9	22.7	5.3	4.7	45.6
Black cherry	.0	9.5	7.0	8.9	15.1	40.5	.0	15.6	34.8	10.6	16.6	77.6
Chestnut oak	37.5	157.7	153.0	45.5	49.8	443.5	37.5	221.0	488.2	127.3	64.5	938.5
Northern red oak	189.1	248.9	104.2	40.2	36.1	618.5	189.1	325.1	307.3	80.6	41.6	943.6
Select white oaks	86.3	96.3	76.6	16.6	23.9	299.7	86.3	140.1	217.1	51.6	24.7	519.7
Other oaks	168.4	188.1	91.6	29.9	24.0	502.0	168.4	265.6	292.8	91.5	31.4	849.7
Black locust	1.7	5.7	25.7	6.1	24.6	63.9	1.7	11.0	53.5	14.3	31.3	111.8
Basswood	10.1	47.0	16.0	4.7	2.7	80.5	10.1	53.7	39.6	6.0	3.7	113.0
Other hardwoods	4.9	36.7	19.0	29.3	23.3	113.2	4.9	49.7	53.7	48.1	26.8	183.2
Total hardwoods	719.1	1,009.0	681.2	296.9	300.8	3,007.1	719.1	1,417.4	2,160.2	745.6	392.6	5,435.0
All species	916.2	1,062.2	735.3	306.7	368.4	3,388.8	1,021.6	1,546.9	2,336.0	763.4	506.6	6,174.5

Table 105.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, South-central Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	138	4,517	712	318	13,165	2,973
Eastern hemlock	137	1,892	259	261	5,678	1,196
Other softwoods	473	2,050	105	1,090	4,451	149
Total softwoods	748	8,459	1,076	1,670	23,294	4,318
Red maple	695	7,017	1,153	1,145	15,363	2,439
Sugar maple	0	2,326	641	0	5,005	1,995
Yellow birch	71	163	0	0	1,519	0
Sweet birch	317	3,721	421	382	7,631	1,208
Hickory	1,029	988	1,282	2,647	4,289	3,251
Beech	60	326	158	0	1,301	788
White ash	418	1,869	2,061	652	9,019	7,607
Yellow-poplar	242	3,344	1,783	0	16,785	7,849
Blackgum	0	1,281	189	0	1,782	543
Black cherry	98	1,935	196	0	4,487	399
Chestnut oak	9,370	-1,990	8,064	21,436	10,703	26,306
Northern red oak	4,580	3,728	5,308	13,676	24,081	22,577
Select white oaks	1,959	1,969	2,834	4,848	13,643	13,526
Other oaks	3,805	2,967	4,256	6,870	24,451	16,912
Basswood	115	490	323	261	2,187	1,228
Other hardwoods	1,763	2,437	1,567	2,440	11,267	5,645
Total hardwoods	24,522	32,571	30,238	54,359	153,515	112,275
All species	25,270	41,030	31,313	56,029	176,809	116,593

[a] Mortality is a component of net growth.

NORTHEASTERN UNIT TABLES

Table 106.--Area of timberland by forest type, forest-type group, and stand-size class, Northeastern Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Red pine	.0	3.8	.0	.0	3.8	100.0
White pine	32.1	5.2	.0	.0	37.2	37.0
Hemlock	57.5	9.8	.0	.0	67.2	25.8
White/red pine group	89.5	18.8	.0	.0	108.3	20.1
Wh. pine/no. red oak/wh. ash	22.3	.0	.0	.0	22.3	50.0
Oak/pine group	22.3	.0	.0	.0	22.3	50.0
Post, black, or bear oak	.0	5.6	5.9	.0	11.4	70.7
Chestnut oak	5.8	16.8	17.6	.0	40.2	37.2
White oak/red oak/hickory	6.0	39.2	.0	.0	45.2	35.3
White oak	.0	16.7	.0	.0	16.7	56.1
Northern red oak	22.2	15.5	.0	.0	37.7	37.3
Hawthorn/reverting field	.0	.0	10.2	.0	10.2	70.7
Scarlet oak	.0	5.5	.0	.0	5.5	100.0
Red maple/central hardwoods	5.6	11.7	.0	.0	17.3	57.7
Mixed central hardwoods	53.9	67.0	22.0	.0	142.9	18.8
Oak/hickory group	93.5	178.0	55.7	.0	327.2	11.2
Red maple(lowland)	.0	4.3	.0	.0	4.3	100.0
Red maple(upland)	10.4	23.3	5.6	.0	39.3	38.0
River birch/sycamore	11.1	.0	.0	.0	11.1	70.7
Sycamore/pecan/American elm	6.0	.0	.0	.0	6.0	100.0
Elm/ash/red maple group	27.5	27.6	5.6	.0	60.7	30.3
Sugar maple/beech/yellow birch	257.5	87.0	16.9	.0	361.4	10.5
Black cherry	30.4	.0	16.5	.0	46.9	33.0
Red maple/northern hardwoods	66.8	110.7	51.7	.0	229.3	14.1
Pin cherry/reverting field	.0	.0	55.1	.0	55.1	31.0
Mixed northern hardwoods	80.9	43.0	38.3	.0	162.2	17.6
Northern hardwoods group	435.7	240.7	178.5	.0	854.9	5.6
Aspen	17.4	11.2	10.5	.0	39.0	37.8
Gray birch	.0	.0	6.2	.0	6.2	100.0
Aspen/birch group	17.4	11.2	16.6	.0	45.1	34.6
All forest types	685.9	476.2	256.4	.0	1,418.5	2.3
SE	6.3	9.0	13.0	.0	2.3	

Table 107.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Northeastern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	5,466	4,431	1,772	1,518	780	512	623	245
Other yellow pines	0	0	43	0	0	0	0	0
Eastern hemlock	14,333	8,766	5,053	3,799	2,852	2,084	1,323	802
Other softwoods	0	1,053	197	62	0	0	0	0
Total softwoods	19,799	14,250	7,065	5,379	3,633	2,596	1,946	1,047
Red maple	84,001	46,839	20,936	13,647	9,619	4,502	2,014	1,030
Sugar maple	35,549	17,602	10,196	9,101	6,091	3,845	2,336	1,026
Yellow birch	1,931	2,732	2,260	914	544	206	163	89
Sweet birch	13,206	8,787	5,485	3,724	1,948	946	311	72
Hickory	5,776	4,634	2,100	979	731	292	155	123
Beech	48,842	10,241	5,723	3,100	1,776	1,461	595	729
White ash	27,443	5,566	5,954	4,473	3,757	1,523	1,013	379
Black walnut	0	0	0	270	33	82	39	0
Yellow-poplar	0	0	56	0	0	52	23	37
Blackgum	2,104	1,079	0	50	0	0	0	0
Aspen	3,367	1,595	1,478	1,111	643	246	61	13
Black cherry	13,232	4,917	3,047	2,087	1,210	1,229	750	415
Chestnut oak	2,803	2,139	4,012	1,557	1,404	1,088	320	111
Northern red oak	8,721	3,074	2,850	2,353	2,321	1,847	989	501
Select white oaks	1,265	1,023	1,220	1,281	851	503	340	78
Other oaks	4,169	612	375	519	433	367	98	63
Black locust	909	912	123	0	0	0	0	0
Basswood	324	0	470	660	765	776	285	191
Other hardwoods	6,485	2,671	1,839	1,172	1,137	1,208	573	174
Total hardwoods	260,127	114,423	68,124	46,997	33,265	20,174	10,067	5,032
All species	279,926	128,673	75,189	52,376	36,897	22,770	12,013	6,079
SE	8.5	7.9	5.3	5.5	4.9	5.1	5.6	7.4

Table 107.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	193	64	224	24	5,955	15,852	25.2
Other yellow pines	0	0	0	0	43	43	100.0
Eastern hemlock	398	119	86	0	16,517	39,616	15.8
Other softwoods	0	0	0	0	259	1,313	82.7
Total softwoods	591	183	310	24	22,773	56,823	13.0
Red maple	421	173	211	27	52,580	183,420	9.9
Sugar maple	629	291	214	30	33,760	86,910	10.2
Yellow birch	16	0	10	0	4,201	8,864	27.2
Sweet birch	37	7	16	0	12,547	34,541	18.0
Hickory	11	29	45	0	4,465	14,875	21.5
Beech	201	108	44	0	13,738	72,821	20.5
White ash	241	63	94	0	17,497	50,506	17.4
Black walnut	0	0	17	5	446	446	51.5
Yellow-poplar	37	13	0	0	217	217	65.2
Blackgum	0	0	0	0	50	3,232	89.5
Aspen	13	0	0	0	3,567	8,529	31.2
Black cherry	202	130	101	14	9,185	27,334	18.1
Chestnut oak	37	33	47	0	8,610	13,552	27.8
Northern red oak	371	255	142	11	11,640	23,436	20.7
Select white oaks	41	0	46	0	4,359	6,647	28.4
Other oaks	51	10	0	0	1,917	6,699	53.0
Black locust	0	0	0	0	123	1,945	81.1
Basswood	20	21	38	13	3,239	3,563	25.2
Other hardwoods	32	54	12	34	6,236	15,391	18.7
Total hardwoods	2,361	1,187	1,038	134	188,378	562,928	5.5
All species	2,951	1,371	1,348	158	211,152	619,751	5.0
SE	9.4	10.8	11.4	24.3	3.7	5.0	

Table 108.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Northeastern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	SE
White and red pine	386	69	19	474	646	42	35	722	1,196	36.3
Eastern hemlock	249	46	26	322	442	109	81	632	954	36.8
Total softwoods	635	115	45	795	1,088	151	116	1,355	2,150	26.5
Red maple	1,217	0	0	1,217	1,986	161	16	2,163	3,380	20.1
Sugar maple	415	16	40	471	774	92	79	946	1,417	22.5
Yellow birch	232	14	15	261	379	14	7	400	661	32.5
Sweet birch	514	17	17	548	741	121	25	888	1,435	27.4
Hickory	35	0	0	35	101	0	0	101	135	72.5
Beech	114	23	6	143	914	319	230	1,464	1,607	21.6
White ash	159	0	9	168	49	18	12	79	248	47.0
Blackgum	0	0	0	0	36	0	0	36	36	100.0
Aspen	128	0	0	128	1,033	31	0	1,064	1,191	34.6
Black cherry	255	73	17	344	355	64	0	419	763	28.8
Chestnut oak	734	118	15	867	783	55	18	856	1,723	28.8
Northern red oak	572	52	11	635	313	31	0	344	979	30.2
Select white oaks	337	27	0	364	669	0	0	669	1,033	47.4
Other oaks	0	0	0	0	200	0	0	200	200	75.4
Basswood	160	0	0	160	181	0	64	245	405	47.4
Other commercial hardwoods	252	122	0	374	799	50	15	863	1,237	26.9
Noncommercial hardwoods	469	19	14	503	745	34	6	785	1,287	35.6
Total hardwoods	5,592	481	144	6,217	10,058	991	473	11,523	17,739	7.8
All species	6,227	596	189	7,012	11,146	1,142	589	12,877	19,889	7.7
SE	12.9	22.4	28.2	11.7	9.6	14.6	18.3	8.7	7.7	

Table 109.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Northeastern Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Common juniper	0	0	1	0	1	100.0
Eastern redcedar	1	0	0	0	1	100.0
Red pine	0	1	2	0	4	73.6
Eastern white pine	8	3	5	0	16	26.5
Eastern hemlock	43	4	2	0	49	29.4
Boxelder	1	0	0	0	1	100.0
Striped maple	113	22	14	0	149	20.9
Red maple	98	147	186	0	431	13.8
Sugar maple	273	165	23	0	460	25.3
Mountain maple	1	3	0	0	5	73.3
Ailanthus species	0	0	2	0	2	100.0
Alder species	3	55	0	0	58	56.5
Serviceberry	33	52	29	0	115	17.6
Chokeberry species	5	0	12	0	17	78.1
Azalea species	3	0	0	0	3	100.0
Barberry	5	19	1	0	26	57.1
Yellow birch	7	5	6	0	18	36.9
Sweet birch	46	64	76	0	186	26.1
Paper birch	0	0	3	0	3	90.4
Gray birch	65	12	21	0	98	65.3
American hornbeam	35	57	59	0	152	39.3
Hickory species	13	23	10	0	46	26.8
Bitternut hickory	0	2	0	0	2	83.5
Shagbark hickory	0	0	0	0	1	70.7
American chestnut	1	1	5	0	7	65.8
Sweetfern	47	13	0	0	61	68.2
Flowering dogwood	9	29	12	0	49	33.8
Alternate-leaved dogwood	0	4	2	0	7	62.4
Silky dogwood	3	3	0	0	6	70.7
Panicled dogwood	65	162	148	0	376	29.2
Red-osier dogwood	0	1	5	0	6	83.1
Hawthorn species	47	61	94	0	202	18.6
American hazelnut	9	2	0	0	11	56.9
Beaked hazelnut	9	0	0	0	9	100.0
American beech	459	131	45	0	635	15.4
Russian olive	0	10	2	0	12	59.6
White ash	327	311	209	0	847	12.8
Green ash	2	0	1	0	3	75.2
Huckleberry	0	20	5	0	24	82.6
Witch-hazel	136	71	28	0	236	21.7
Large-leaved holly	0	7	0	0	7	100.0
Black walnut	1	0	0	0	1	100.0
Sheep laurel	0	20	24	0	43	63.3
Mountain laurel	152	386	121	0	660	26.1
Common spicebush	47	2	1	0	50	52.1
Yellow-poplar	0	0	1	0	1	100.0
Bush honeysuckle	1	0	0	0	1	100.0
Apple species	1	2	37	0	41	66.5
Mountain holly	0	0	35	0	35	100.0
Black tupelo	1	8	1	0	11	50.2
Eastern hophornbeam	79	68	11	0	158	20.5
Bigtooth aspen	0	0	5	0	5	57.0
Quaking aspen	4	20	25	0	48	44.3
Cherry species	7	0	3	0	9	63.5
Pin cherry	1	0	9	0	10	45.8
Black cherry	155	78	105	0	339	21.7
Chokecherry	3	12	15	0	31	54.1
White oak	0	19	7	0	27	38.7
Scarlet oak	0	0	3	0	3	88.4
Scrub, bear oak	0	10	9	0	19	60.2
Chestnut oak	11	2	19	0	31	35.9

Table 109.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Northern red oak	18	61	24	0	102	27.7
Black oak	0	4	29	0	33	73.8
Buckthorn species	0	9	10	0	20	62.6
Rhododendron species	0	9	0	0	9	100.0
Staghorn sumac	1	0	14	0	15	53.4
Currant species	6	5	3	0	15	51.1
Black locust	3	0	0	0	3	90.0
Rose species	39	21	39	0	99	42.1
Rubus species	1,107	837	946	0	2,890	11.8
Black willow	8	0	0	0	8	100.0
American elderberry	0	1	11	0	13	91.7
Red-berried alder	5	1	0	0	5	85.5
Sassafras	0	16	1	0	17	63.7
Spirea species	144	72	660	0	876	31.7
American basswood	0	1	3	0	5	57.4
Elm species	2	0	1	0	3	72.7
American elm	4	1	4	0	9	44.9
Slippery elm	0	15	2	0	17	80.8
American bladdernut	28	0	0	0	28	100.0
Blueberry	199	592	372	0	1,163	20.5
Viburnum species	2	10	3	0	15	48.0
Maple-leaved viburnum	105	60	65	0	230	30.1
Hobblebush viburnum	14	1	32	0	47	65.0
Wild raisin	1	0	0	0	1	100.0
Arrowwood	12	17	12	0	41	37.5
Nannyberry	0	0	67	0	67	80.7
Blackhaw	0	0	13	0	13	100.0
Unknown deciduous shrub	7	8	69	0	83	47.4
Unknown tree	1	3	11	0	16	74.5
All species	4,038	3,837	3,835	0	11,710	6.4
SE	11.3	11.6	16.9	.0	6.4	

Table 110.--Net dry weight[a] of all trees on timberland by class of material and species group, Northeastern Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	3,174	20,387	23,561	4.6
Upper stem	379	5,026	5,405	4.4
Total sawtimber trees	3,553	25,414	28,967	4.6
Poletimber trees	780	20,046	20,826	4.3
All growing stock	4,333	45,459	49,793	3.5
Rough cull trees[b]	151	2,857	3,009	8.4
Rotten cull trees[b]	28	864	892	12.5
Salvable dead trees[c]	113	510	623	14.8
Saplings[c]	449	7,029	7,478	6.5
Tops - growing stock	1,477	16,566	18,043	3.4
Tops - rough and rotten	57	1,311	1,368	7.3
All nongrowing stock	2,275	29,136	31,411	3.2
All classes	6,608	74,596	81,204	3.2
SE	11.3	3.4	3.2	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 111.--Net volume of all trees on timberland by class of timber and species group, Northeastern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	59.8	127.7	394.6	439.2	1,021.1	4.9
Upper stem	6.5	16.3	100.3	109.6	232.6	4.6
Total sawtimber trees	66.3	143.9	494.8	548.7	1,253.8	4.8
Poletimber trees	13.8	33.4	465.2	449.8	962.1	4.7
Total growing-stock trees	80.0	177.3	960.0	998.6	2,215.9	3.7
Rough trees:						
Sawtimber size	1.4	2.6	20.3	24.8	49.0	10.8
Poletimber size	.1	.2	10.6	19.6	30.5	14.0
Total rough trees	1.5	2.8	30.9	44.4	79.5	9.0
Rotten trees:						
Sawtimber size	.1	1.1	8.4	13.8	23.4	14.0
Poletimber size	.0	.0	1.0	1.1	2.1	28.3
Total rotten trees	.1	1.1	9.4	14.9	25.5	13.0
Salvable dead[a] trees:						
Sawtimber size	.8	2.3	1.6	2.2	6.8	24.7
Poletimber size	.1	.5	4.7	2.4	7.7	22.4
Total salvable dead trees	.9	2.7	6.3	4.6	14.5	17.9
All classes	82.5	183.8	1,006.6	1,062.4	2,335.3	3.6
SE	21.6	15.3	6.3	5.1	3.6	

[a] Includes noncommercial species.

Table 112.--Net volume of growing-stock trees on timberland by species and diameter class, Northeastern Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	5.6	6.9	7.4	9.2	9.4	4.9	3.5	3.8	7.6	1.9	60.0
Eastern hemlock	9.8	17.6	21.5	23.8	16.3	11.7	3.4	2.1	2.0	.0	108.2
Total softwoods	15.4	24.4	28.9	32.9	25.7	16.6	6.8	5.9	9.6	1.9	168.2
Red maple	49.8	86.3	92.0	51.1	33.0	18.4	6.0	1.9	5.5	.7	344.7
Sugar maple	35.1	54.5	68.0	50.1	36.7	21.7	17.9	6.0	6.3	5.1	301.4
Yellow birch	6.8	4.5	5.3	7.2	2.5	2.0	.0	.0	.0	.0	28.2
Sweet birch	12.3	20.9	18.4	9.0	5.8	2.1	.0	.0	.6	.0	69.0
Hickory	3.8	8.6	4.8	1.3	2.5	1.6	.0	2.2	.0	.0	24.8
Beech	17.1	18.7	23.0	25.9	24.7	11.7	11.5	1.4	4.2	.0	138.1
White ash	21.4	32.5	23.4	28.4	9.1	4.8	1.3	2.1	1.1	.0	124.0
Yellow-poplar	.2	1.3	.7	2.4	3.5	6.7	.0	.0	.0	.0	14.8
Blackgum	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
Black cherry	5.1	14.7	21.4	18.3	13.0	6.9	8.7	6.4	3.1	.0	97.6
Chestnut oak	5.0	11.3	21.7	11.4	5.8	1.4	.9	.4	.0	.0	57.8
Northern red oak	11.1	28.7	33.1	25.9	16.9	15.2	9.5	5.2	12.5	.0	158.1
Select white oaks	4.8	10.3	7.8	7.8	2.8	2.0	.8	2.1	1.3	.0	39.7
Other oaks	1.6	1.4	4.4	1.1	3.2	2.3	2.2	.0	2.9	.0	19.0
Basswood	3.7	9.8	13.7	10.0	7.9	.4	2.7	.6	1.8	.0	50.7
Other hardwoods	13.6	17.1	27.7	16.0	7.3	.4	1.1	.6	3.7	2.2	89.6
Total hardwoods	191.4	320.5	365.4	265.7	174.6	97.3	62.6	28.9	42.9	8.0	1,557.5
All species	206.8	345.0	394.3	298.7	200.3	114.0	69.4	34.8	52.5	9.9	1,725.7

Table 113.--Net volume of growing-stock trees on timberland by species and diameter class, Northeastern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	4.7	9.0	8.6	7.9	14.3	7.2	7.8	3.1	14.3	3.0	80.0	22.0
Other yellow pines	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	100.0
Eastern hemlock	12.1	20.3	28.3	33.0	30.4	24.4	16.4	5.5	5.8	.0	176.3	15.6
Other softwoods	.6	.4	.0	.0	.0	.0	.0	.0	.0	.0	1.0	100.0
Total softwoods	17.5	29.7	36.9	41.0	44.7	31.7	24.2	8.6	20.1	3.0	257.3	12.3
Red maple	57.8	88.9	110.0	79.5	50.5	32.7	17.2	8.7	14.7	3.8	463.8	9.1
Sugar maple	31.3	67.0	75.6	73.2	59.5	33.9	27.1	14.9	15.4	4.0	401.9	10.0
Yellow birch	7.0	5.8	6.1	3.0	3.0	2.7	.5	.0	.8	.0	29.0	22.7
Sweet birch	15.1	24.9	21.4	15.3	7.6	2.2	1.7	.3	1.2	.0	89.6	14.7
Hickory	5.6	7.3	9.1	5.2	3.9	4.0	.4	1.5	2.8	.0	39.9	20.6
Beech	14.7	20.7	24.0	26.5	16.2	23.8	8.8	6.1	3.0	.0	143.8	14.4
White ash	18.8	33.2	48.5	28.3	26.7	13.7	10.8	3.6	8.1	.0	191.7	12.6
Black walnut	.0	1.9	.4	1.1	.7	.0	.0	.0	.7	.6	5.4	49.1
Yellow-poplar	.2	.0	.0	1.1	.6	1.5	1.9	.9	.0	.0	6.3	60.1
Blackgum	.0	.4	.0	.0	.0	.0	.0	.0	.0	.0	.4	100.0
Aspen	4.6	7.9	7.8	4.9	1.8	.3	.6	.0	.0	.0	28.0	28.4
Black cherry	9.2	15.1	16.3	25.6	21.9	15.7	10.0	7.6	8.3	2.0	131.8	15.1
Chestnut oak	8.9	8.4	13.9	16.0	6.5	2.9	1.4	1.4	2.2	.0	61.5	20.7
Northern red oak	8.6	17.2	26.2	31.6	23.8	16.3	15.4	12.9	10.9	1.3	164.3	14.9
Select white oaks	3.3	7.6	8.5	7.4	7.4	2.6	1.7	.0	2.7	.0	41.3	25.5
Other oaks	.7	3.0	5.4	5.9	2.3	2.1	1.7	.5	.0	.0	21.5	32.9
Black locust	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.3	100.0
Basswood	1.9	5.6	11.0	15.9	8.1	6.7	.6	1.2	2.9	1.5	55.5	23.7
Other hardwoods	5.0	8.8	14.2	22.8	15.2	5.7	1.3	2.6	1.2	5.7	82.5	24.3
Total hardwoods	193.1	323.7	398.3	363.2	255.8	167.0	101.4	62.1	75.0	19.0	1,958.6	4.0
All species	210.5	353.3	435.2	404.2	300.5	198.6	125.7	70.7	95.1	22.0	2,215.9	3.7
SE	5.6	5.9	5.2	5.4	5.8	7.5	9.8	11.2	11.7	25.8	3.7	

Table 114.--Net volume of sawtimber trees on timberland by species and diameter class, Northeastern Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	21.9	32.3	41.7	23.1	17.0	19.4	40.7	9.5	205.6
Eastern hemlock	55.6	74.8	58.9	45.8	13.8	9.3	8.6	.0	266.8
Other softwoods	.8	.0	.0	.0	.0	.0	.0	.0	.8
Total softwoods	78.4	107.0	100.6	68.9	30.7	28.7	49.3	9.5	473.2
Red maple	-	188.8	139.6	82.7	25.1	9.3	26.6	2.7	474.9
Sugar maple	-	181.5	150.9	95.3	81.3	29.0	30.9	27.1	596.1
Yellow birch	-	23.1	10.7	9.2	.0	.0	.0	.0	43.0
Sweet birch	-	34.7	23.6	8.1	.0	.0	2.8	.0	69.2
Hickory	-	4.4	13.3	8.6	.0	11.4	.0	.0	37.7
Beech	-	98.6	107.9	53.2	50.3	5.0	21.3	.0	336.3
White ash	-	141.9	49.5	29.0	9.2	10.5	5.3	.0	245.4
Yellow-poplar	-	10.2	17.9	36.4	.0	.0	.0	.0	64.5
Black cherry	-	57.7	48.4	27.6	37.5	24.1	15.6	.0	210.9
Chestnut oak	-	30.5	16.5	4.5	3.1	1.1	.0	.0	55.8
Northern red oak	-	86.0	65.5	66.0	42.6	26.2	65.5	.0	351.9
Select white oaks	-	29.1	11.1	7.7	3.8	9.7	5.9	.0	67.4
Other oaks	-	3.5	12.4	9.9	11.2	.0	17.2	.0	54.2
Basswood	-	37.4	33.5	1.6	11.5	2.4	7.8	.0	94.2
Other hardwoods	-	60.8	29.3	1.5	4.6	1.6	20.7	10.4	128.8
Total hardwoods	-	988.3	730.1	441.3	280.3	130.4	219.7	40.2	2,830.3
All species	78.4	1,095.3	830.7	510.2	311.0	159.1	269.1	49.7	3,303.5

Table 115.--Net volume of sawtimber trees on timberland by species and diameter class, Northeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	23.6	30.5	57.9	34.4	36.3	15.0	68.6	15.0	281.2	22.0
Eastern hemlock	84.2	118.7	122.8	104.8	74.5	26.6	28.5	.0	560.1	17.0
Total softwoods	107.8	149.1	180.7	139.3	110.8	41.6	97.1	15.0	841.3	13.6
Red maple	-	278.0	202.0	138.3	76.3	38.1	69.7	19.0	821.5	11.7
Sugar maple	-	267.9	237.7	144.2	118.3	66.1	71.7	17.4	923.3	12.8
Yellow birch	-	11.5	11.3	12.1	2.4	.0	3.8	.0	41.2	26.4
Sweet birch	-	57.5	29.6	9.3	6.8	1.3	5.7	.0	110.2	20.9
Hickory	-	20.4	16.3	18.0	2.2	6.1	16.1	.0	79.1	28.9
Beech	-	101.6	70.2	106.2	38.8	23.1	12.3	.0	352.3	17.5
White ash	-	104.7	109.4	57.0	50.0	17.6	40.8	.0	379.5	14.6
Black walnut	-	3.7	2.4	.0	.0	.0	2.3	3.3	11.7	58.5
Yellow-poplar	-	3.6	2.7	8.0	9.0	5.2	.0	.0	28.6	60.0
Aspen	-	18.9	7.8	1.5	2.5	.0	.0	.0	30.7	49.0
Black cherry	-	96.0	91.9	72.1	48.5	38.0	42.0	12.5	401.0	18.4
Chestnut oak	-	57.0	25.0	11.6	6.5	6.6	8.8	.0	115.5	24.1
Northern red oak	-	111.2	92.4	66.3	66.8	57.7	53.5	6.0	453.9	14.8
Select white oaks	-	24.9	31.0	11.9	7.8	.0	13.2	.0	88.8	25.3
Other oaks	-	19.5	8.6	8.1	6.7	2.3	.0	.0	45.1	34.4
Basswood	-	59.6	36.9	32.4	2.9	4.8	14.3	8.0	159.0	22.9
Other hardwoods	-	91.4	68.1	25.3	6.4	11.5	6.6	29.2	238.7	27.7
Total hardwoods	-	1,327.3	1,043.4	722.2	452.1	278.5	360.9	95.3	4,279.9	5.4
All species	107.8	1,476.4	1,224.1	861.5	562.9	320.1	458.0	110.3	5,121.2	4.9
SE	15.5	5.6	5.9	7.8	10.0	11.3	11.7	27.2	4.9	

Table 116.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Northeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	5.0	4.6	52.1	107.6	169.3	11.1	15.5	109.3	145.4	281.2
Eastern hemlock	234.4	-	-	-	234.4	560.1	-	-	-	560.1
Total softwoods	239.4	4.6	52.1	107.6	403.7	571.2	15.5	109.3	145.4	841.3
Red maple	14.1	28.6	225.8	73.0	341.5	14.1	58.3	482.7	266.4	821.5
Sugar maple	106.8	67.4	150.2	93.3	417.7	141.6	130.2	388.4	263.1	923.3
Yellow birch	.2	1.8	13.9	2.4	18.3	.3	6.3	29.2	5.3	41.2
Sweet birch	5.1	7.3	10.1	.5	23.0	6.0	16.4	59.6	28.1	110.2
Hickory	.0	12.0	12.5	17.9	42.4	.0	14.2	34.1	30.8	79.1
Beech	2.6	4.6	84.0	89.2	180.4	3.3	6.0	160.4	182.6	352.3
White ash	52.8	38.9	51.4	22.3	165.4	58.0	100.7	157.5	63.3	379.5
Black walnut	.0	.0	5.2	.4	5.6	.0	.9	8.8	1.9	11.7
Yellow-poplar	11.8	3.3	5.6	1.6	22.2	11.8	4.8	8.1	3.8	28.6
Aspen	.0	.0	1.5	2.5	4.0	.0	1.6	15.5	13.7	30.7
Black cherry	54.0	34.6	97.4	27.1	213.1	56.9	79.3	198.7	66.1	401.0
Chestnut oak	7.2	6.2	4.2	15.8	33.4	7.2	15.3	57.6	35.3	115.5
Northern red oak	71.8	59.8	73.1	45.7	250.4	75.9	89.0	181.6	107.5	453.9
Select white oaks	7.0	6.9	10.3	8.7	32.9	7.0	14.5	42.6	24.7	88.8
Other oaks	2.5	2.9	7.2	4.5	17.1	2.5	2.9	18.9	20.8	45.1
Basswood	3.2	17.4	39.0	2.9	62.5	5.8	35.0	99.0	19.2	159.0
Other hardwoods	12.5	14.2	31.8	20.6	79.1	12.5	28.1	105.5	92.6	238.7
Total hardwoods	351.4	306.0	823.3	428.4	1,909.2	402.9	603.6	2,048.2	1,225.1	4,279.9
Percent of hardwood in each grade	18	16	43	23	100	9	14	48	29	100

Table 117.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Northeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	13.1	3.9	37.2	28.6	86.5	169.3	29.2	19.1	88.6	46.3	98.1	281.2
Eastern hemlock	154.6	-	-	-	79.9	234.4	358.0	-	-	-	202.1	560.1
Total softwoods	167.6	3.9	37.2	28.6	166.4	403.7	387.2	19.1	88.6	46.3	300.2	841.3
Red maple	22.7	35.5	59.9	61.6	161.7	341.5	22.7	70.0	275.8	224.3	228.7	821.5
Sugar maple	52.8	82.2	93.6	58.5	130.6	417.7	52.8	149.3	337.5	187.9	195.7	923.3
Yellow birch	.0	2.3	7.7	1.8	6.5	18.3	.0	3.5	21.6	3.8	12.2	41.2
Sweet birch	7.7	8.6	.0	.0	6.8	23.0	7.7	14.7	53.4	23.9	10.5	110.2
Hickory	.0	2.5	10.1	15.0	14.8	42.4	.0	6.3	35.7	22.3	14.8	79.1
Beech	3.2	6.6	29.4	76.0	65.2	180.4	3.2	8.9	87.0	160.5	92.6	352.3
White ash	72.4	36.3	23.7	11.5	21.4	165.4	72.4	102.6	150.0	22.4	32.0	379.5
Black walnut	.0	.0	2.3	.0	3.3	5.6	.0	.0	6.2	1.1	4.4	11.7
Yellow-poplar	18.4	3.9	.0	.0	.0	22.2	18.4	6.6	2.1	1.5	.0	28.6
Aspen	.0	.0	.0	2.5	1.5	4.0	.0	2.3	12.2	11.8	4.4	30.7
Black cherry	79.8	49.9	35.3	5.9	42.2	213.1	79.8	113.0	132.1	22.4	53.7	401.0
Chestnut oak	10.1	8.2	.0	3.8	11.4	33.4	10.1	15.1	65.0	12.6	12.6	115.5
Northern red oak	93.0	65.8	42.9	24.2	24.6	250.4	93.0	103.0	157.4	70.3	30.3	453.9
Select white oaks	10.6	8.8	8.2	.0	5.2	32.9	10.6	18.7	47.0	6.9	5.6	88.8
Other oaks	4.4	3.6	7.7	1.4	.0	17.1	4.4	3.6	24.8	12.4	.0	45.1
Basswood	6.4	25.6	18.3	.0	12.2	62.5	6.4	52.8	68.1	11.5	20.1	159.0
Other hardwoods	17.0	18.0	16.2	16.7	11.2	79.1	17.0	38.7	88.8	76.7	17.5	238.7
Total hardwoods	398.5	357.7	355.6	278.9	518.6	1,909.2	398.5	709.1	1,564.6	872.5	735.2	4,279.9
All species	566.2	361.6	392.7	307.4	685.0	2,312.9	785.7	728.2	1,653.1	918.8	1,035.4	5,121.2

Table 118.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Northeastern Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	297	2,442	813	832	8,103	2,153
Eastern hemlock	647	6,243	772	1,533	25,587	2,219
Other softwoods	0	111	27	0	0	71
Total softwoods	944	8,797	1,612	2,365	33,689	4,442
Red maple	1,747	11,524	2,048	1,144	30,714	3,531
Sugar maple	747	11,570	3,297	329	34,725	7,703
Yellow birch	393	483	368	622	818	976
Sweet birch	475	2,493	825	352	4,212	933
Hickory	158	1,209	0	192	3,518	0
Beech	1,107	2,062	1,493	3,245	6,895	4,932
White ash	89	7,211	1,792	343	15,098	4,079
Yellow-poplar	0	23	732	0	222	3,218
Blackgum	0	48	15	0	0	0
Black cherry	476	4,748	2,049	376	21,185	6,098
Chestnut oak	722	1,475	1,121	803	6,643	2,150
Northern red oak	470	4,678	4,164	564	20,468	12,610
Select white oaks	297	596	458	206	2,840	1,227
Other oaks	93	1,157	994	0	3,488	4,393
Basswood	553	927	530	883	6,751	1,519
Other hardwoods	1,595	3,066	1,099	1,885	13,910	1,915
Total hardwoods	8,923	53,271	20,985	10,945	171,489	55,285
All species	9,867	62,068	22,596	13,310	205,178	59,727

[a] Mortality is a component of net growth.

POCONO UNIT TABLES

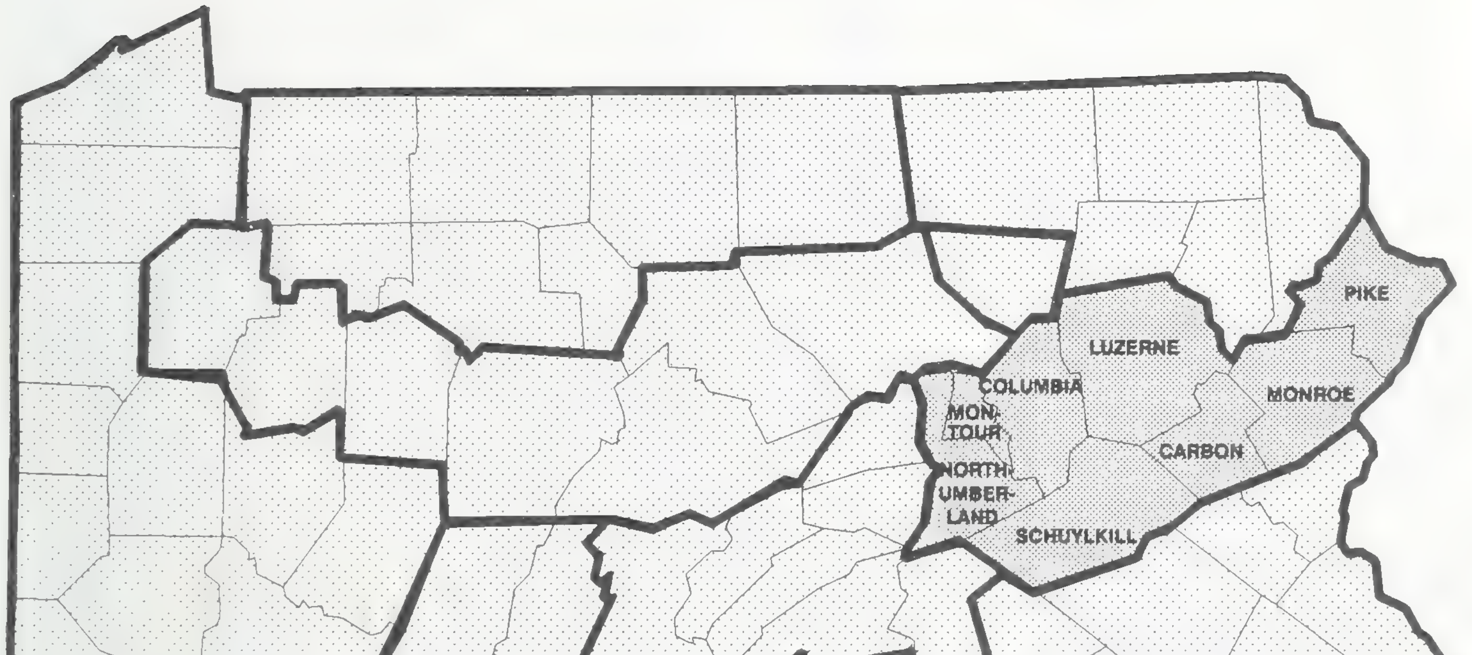

Table 119.--Area of timberland by forest type, forest-type group, and stand-size class, Pocono Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	26.8	5.2	6.4	.0	38.4	37.6
Hemlock	47.9	16.1	.0	.0	64.0	28.6
Scotch pine	.0	5.5	.0	.0	5.5	100.0
White/red pine group	74.7	26.7	6.4	.0	107.8	21.8
Tamarack	.0	.0	11.6	.0	11.6	71.1
Spruce/fir group	.0	.0	11.6	.0	11.6	71.1
Virginia pine	5.5	5.4	.0	.0	10.9	70.7
Pitch pine	11.3	.0	5.3	.0	16.5	57.7
Loblolly/shortleaf group	16.7	5.4	5.3	.0	27.4	44.7
Wh. pine/no. red oak/wh. ash	31.7	23.1	.0	.0	54.8	31.5
Virginia pine/oak	5.4	.0	5.9	.0	11.4	70.7
Other oak/pine	5.5	15.6	22.2	.0	43.2	35.0
Oak/pine group	42.6	38.7	28.1	.0	109.4	22.0
Post, black, or bear oak	.0	.0	5.2	.0	5.2	100.0
Chestnut oak	78.4	118.6	49.2	.0	246.3	13.8
White oak/red oak/hickory	46.3	61.7	21.7	.0	129.7	19.6
White oak	27.1	61.7	11.3	.0	100.1	23.2
Y. poplar/wh. oak/no. red oak	10.6	.0	.0	.0	10.6	70.7
Black locust	5.6	.0	.0	.0	5.6	100.0
Hawthorn/reverting field	.0	.0	17.0	.0	17.0	58.1
Scarlet oak	9.8	10.8	.0	.0	20.6	50.3
Red maple/central hardwoods	14.0	21.2	5.6	.0	40.8	34.8
Mixed central hardwoods	207.3	276.8	20.7	.0	504.8	8.8
Oak/hickory group	399.2	550.9	130.7	.0	1,080.8	4.5
Black ash/Amer. elm/red maple	5.9	6.4	.0	.0	12.3	70.7
Red maple(lowland)	.0	11.2	5.2	.0	16.4	57.8
Red maple(upland)	9.6	5.0	.0	.0	14.6	59.4
River birch/sycamore	.0	5.7	.0	.0	5.7	100.0
American elm/green ash	.0	.0	5.6	.0	5.6	100.0
Elm/ash/red maple group	15.5	28.3	10.8	.0	54.6	31.9
Sugar maple/beech/yellow birch	40.7	.0	6.2	.0	47.0	33.7
Black cherry	5.4	5.5	12.2	.0	23.1	50.2
Red maple/northern hardwoods	49.0	34.0	5.3	.0	88.3	24.3
Pin cherry/reverting field	.0	.0	11.2	.0	11.2	70.8
Mixed northern hardwoods	27.6	60.4	5.2	.0	93.3	23.9
Northern hardwoods group	122.7	99.9	40.2	.0	262.8	13.4
Aspen	.0	11.1	11.0	.0	22.1	50.0
Gray birch	.0	.0	10.7	.0	10.7	70.7
Aspen/birch group	.0	11.1	21.7	.0	32.8	39.9
All forest types	671.5	761.0	254.8	.0	1,687.3	1.9
SE	6.9	6.4	13.0	.0	1.9	

Table 120.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Pocono Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	10,629	3,738	2,169	1,275	966	818	745	459
Virginia pine	326	0	512	732	599	472	183	31
Other yellow pines	1,576	1,921	1,691	1,775	711	533	289	56
Eastern hemlock	13,948	4,214	2,561	2,027	1,293	1,323	771	323
Other softwoods	4,791	3,559	709	413	196	156	54	15
Total softwoods	31,269	13,432	7,643	6,223	3,765	3,302	2,042	884
Red maple	166,011	69,703	31,540	15,817	7,315	3,197	1,923	554
Sugar maple	7,566	2,845	1,954	906	453	465	190	57
Yellow birch	3,250	615	642	593	209	156	47	27
Sweet birch	39,392	12,467	8,788	5,137	2,652	1,192	621	150
Hickory	6,070	1,343	1,261	1,316	681	462	109	135
Beech	15,594	4,121	2,189	1,406	757	501	391	176
White ash	10,815	6,039	2,645	1,360	865	845	412	271
Black walnut	1,065	0	135	45	0	0	61	0
Yellow-poplar	0	949	617	75	218	248	161	72
Blackgum	55,409	16,298	4,086	1,204	256	215	57	25
Aspen	2,340	336	485	593	218	64	17	18
Black cherry	7,473	2,797	2,350	1,405	1,032	214	251	99
Chestnut oak	17,046	19,926	19,635	14,199	9,060	4,480	1,725	1,020
Northern red oak	10,527	6,113	4,227	4,724	3,021	2,311	1,595	1,107
Select white oaks	6,140	10,567	8,441	7,694	4,808	2,931	1,574	617
Other oaks	5,827	4,645	4,884	2,802	2,516	1,599	1,114	621
Black locust	3,638	654	337	275	279	145	146	30
Basswood	0	930	318	212	190	105	53	28
Other hardwoods	13,393	3,718	1,807	2,205	1,081	596	266	31
Total hardwoods	371,558	164,068	96,341	61,969	35,609	19,725	10,714	5,037
All species	402,827	177,501	103,984	68,192	39,374	23,027	12,756	5,921
SE	6.4	6.3	4.8	4.0	4.4	4.9	6.5	7.4

Table 120.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	188	144	164	44	6,972	21,339	19.6
Virginia pine	13	0	0	0	2,542	2,868	43.7
Other yellow pines	25	24	6	0	5,110	8,607	26.9
Eastern hemlock	321	186	283	18	9,108	27,270	21.3
Other softwoods	12	9	7	0	1,571	9,921	63.2
Total softwoods	559	363	461	61	25,303	70,005	14.2
Red maple	314	51	119	10	60,839	296,553	6.6
Sugar maple	59	31	60	0	4,175	14,587	25.0
Yellow birch	0	8	0	0	1,682	5,548	27.8
Sweet birch	43	0	6	7	18,597	70,456	12.4
Hickory	39	10	0	0	4,013	11,426	21.5
Beech	99	30	7	0	5,557	25,272	32.6
White ash	72	67	36	5	6,577	23,432	26.6
Black walnut	14	13	0	0	268	1,333	83.7
Yellow-poplar	62	34	51	0	1,538	2,487	33.5
Blackgum	14	0	19	0	5,877	77,584	17.8
Aspen	0	0	0	0	1,395	4,071	50.1
Black cherry	93	32	9	0	5,485	15,754	21.9
Chestnut oak	398	203	119	0	50,839	87,811	10.5
Northern red oak	395	314	309	33	18,037	34,677	12.8
Select white oaks	294	130	185	13	26,687	43,395	13.6
Other oaks	195	109	118	5	13,964	24,436	13.3
Black locust	12	9	6	0	1,239	5,531	53.3
Basswood	18	11	7	0	940	1,870	65.8
Other hardwoods	42	0	11	0	6,039	23,151	36.8
Total hardwoods	2,163	1,052	1,063	73	233,747	769,374	4.4
All species	2,723	1,415	1,524	134	259,051	839,379	4.2
SE	9.3	10.4	11.3	24.3	3.0	4.2	

Table 121.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Pocono Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									
	5.0- 10.9	11.0- 14.9	15+	Total intact	5.0- 10.9	11.0- 14.9	15+	Total broken	All classes	SE
White and red pine	479	20	39	538	66	38	11	115	653	34.5
Virginia pine	479	18	0	497	201	0	0	201	699	47.7
Other yellow pines	615	0	0	615	621	58	0	679	1,295	32.4
Eastern hemlock	65	0	0	65	62	90	33	185	250	38.9
Other softwoods	132	0	0	132	0	0	0	0	132	73.7
Total softwoods	1,771	38	39	1,849	950	186	44	1,180	3,029	21.4
Red maple	425	53	0	478	2,148	104	16	2,268	2,746	18.9
Sugar maple	47	0	0	47	180	20	16	216	263	48.4
Yellow birch	0	0	0	0	317	50	0	366	366	48.2
Sweet birch	115	38	0	153	779	67	0	846	999	31.0
Hickory	25	0	0	25	21	0	31	52	77	51.1
Beech	48	0	29	77	232	146	19	396	473	41.7
White ash	75	0	0	75	203	34	0	237	312	41.1
Blackgum	135	0	0	135	0	28	0	28	163	84.8
Aspen	0	0	0	0	267	0	0	267	267	46.1
Black cherry	133	18	0	152	694	0	0	694	846	41.7
Chestnut oak	1,633	110	74	1,817	6,287	367	111	6,765	8,582	16.0
Northern red oak	592	89	35	717	361	102	11	474	1,191	23.5
Select white oaks	1,445	324	85	1,853	4,084	265	78	4,427	6,280	16.4
Other oaks	525	195	14	735	783	154	19	956	1,691	27.0
Black locust	113	0	0	113	530	0	0	530	643	65.6
Other commercial hardwoods	276	70	0	346	1,585	60	24	1,669	2,015	26.0
Noncommercial hardwoods	860	39	17	916	2,327	52	31	2,410	3,326	17.6
Total hardwoods	6,450	936	254	7,640	20,799	1,448	355	22,602	30,242	7.9
All species	8,221	974	293	9,489	21,749	1,634	399	23,782	33,271	7.3
SE	11.8	20.9	20.8	10.7	8.9	15.1	19.5	8.2	7.3	

Table 122.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Pocono Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Eastern redcedar	0	1	1	0	2	62.3
Larch	0	0	8	0	8	85.8
Spruce species	3	1	0	0	4	64.1
Table Mountain pine	0	1	0	0	1	100.0
Red pine	0	0	0	0	0	100.0
Pitch pine	0	1	3	0	3	43.6
Eastern white pine	46	30	4	0	80	21.2
Virginia pine	0	0	0	0	0	100.0
Eastern hemlock	51	18	1	0	70	30.6
Boxelder	0	0	0	0	1	70.7
Striped maple	29	6	0	0	35	31.8
Red maple	296	586	125	0	1,008	10.7
Silver maple	0	1	0	0	1	100.0
Sugar maple	17	11	5	0	32	27.7
Mountain maple	0	3	0	0	3	100.0
Ailanthus species	0	0	3	0	3	74.1
Alder species	0	4	0	0	4	70.7
Serviceberry	137	103	14	0	254	17.3
Azalea species	21	45	135	0	201	46.2
Barberry	15	0	0	0	15	85.5
Yellow birch	13	3	20	0	35	57.3
Sweet birch	221	216	41	0	478	17.1
Paper birch	0	0	5	0	5	88.3
Gray birch	11	13	54	0	79	31.1
American hornbeam	16	14	0	0	30	46.5
Hickory species	45	25	4	0	74	44.0
Mockernut hickory	0	0	0	0	0	100.0
American chestnut	25	21	59	0	104	37.3
Sweetfern	0	7	76	0	83	60.8
Flowering dogwood	13	2	96	0	111	86.6
Alternate-leaved dogwood	0	3	0	0	3	74.3
Round-leaved dogwood	0	0	4	0	4	100.0
Panicled dogwood	76	62	73	0	211	49.9
Red-osier dogwood	58	10	45	0	114	59.2
Hawthorn species	37	9	8	0	55	38.3
American hazelnut	10	5	0	0	15	68.2
Beaked hazelnut	51	1	11	0	63	56.0
American beech	149	17	7	0	173	27.4
Russian olive	5	0	12	0	17	51.3
White ash	89	69	23	0	181	18.9
Green ash	2	0	31	0	33	93.5
Huckleberry	826	1,414	347	0	2,588	14.9
Witch-hazel	182	167	25	0	373	14.1
Large-leaved holly	2	18	0	0	20	89.6
Winterberry holly	0	5	0	0	5	100.0
Black walnut	0	1	2	0	3	53.3
Sheep laurel	377	867	545	0	1,788	16.4
Mountain laurel	248	818	326	0	1,392	17.4
Common spicebush	101	89	8	0	199	24.3
Yellow-poplar	1	1	0	0	2	63.8
Bush honeysuckle	67	96	61	0	224	43.9
Apple species	2	0	0	0	2	63.2
Mountain holly	0	3	0	0	3	100.0
Black tupelo	62	111	19	0	193	20.7
Eastern hophornbeam	36	7	13	0	56	33.2
Eastern cottonwood	1	0	1	0	2	70.7
Bigtooth aspen	3	5	2	0	9	40.3
Quaking aspen	0	11	4	0	15	72.6
Cherry species	7	0	0	0	7	100.0
Pin cherry	1	2	4	0	7	57.6
Black cherry	209	161	12	0	382	20.9

Table 122.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Sawtimber	Poletimber	Sapling and seedling	Nonstocked		
Chokecherry	5	37	0	0	42	87.6
White oak	60	152	27	0	239	16.9
Scarlet oak	3	31	16	0	49	29.8
Scrub, bear oak	15	157	635	0	807	32.2
Chestnut oak	85	192	38	0	316	15.7
Northern red oak	84	68	16	0	168	16.2
Black oak	39	45	6	0	90	24.2
Buckthorn species	0	34	0	0	34	100.0
Rhododendron species	26	85	0	0	111	60.4
Staghorn sumac	3	6	13	0	22	37.6
Currant species	0	0	1	0	1	100.0
Black locust	5	0	5	0	10	62.1
Rose species	16	2	52	0	70	52.2
Rubus species	407	361	570	0	1,339	30.8
Willow species	14	6	13	0	33	53.3
American elderberry	9	12	7	0	28	37.0
Sassafras	102	113	80	0	295	17.9
Spirea species	0	17	22	0	39	50.8
American basswood	2	0	0	0	2	100.0
American elm	0	1	0	0	1	100.0
Slippery elm	0	1	8	0	9	78.5
American bladdernut	6	0	0	0	6	100.0
Blueberry	2,446	5,331	2,221	0	9,998	10.4
Viburnum species	11	52	7	0	70	49.6
Maple-leaved viburnum	392	199	32	0	624	27.6
Wild raisin	0	3	2	0	6	59.9
Arrowwood	20	201	8	0	229	45.5
Blackhaw	0	3	0	0	3	100.0
Unknown deciduous shrub	145	325	53	0	522	40.6
Unknown tree	15	15	9	0	37	27.4
All species	7,475	12,516	6,079	0	26,070	5.6
SE	11.5	9.2	18.8	.0	5.6	

Table 123.--Net dry weight[a] of all trees on timberland by class of material and species group, Pocono Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	3,830	20,502	24,332	5.0
Upper stem	442	5,024	5,465	4.6
Total sawtimber trees	4,272	25,525	29,797	4.9
Poletimber trees	911	22,702	23,613	3.2
All growing stock	5,183	48,227	53,410	3.2
Rough cull trees[b]	50	2,001	2,051	10.4
Rotten cull trees[b]	17	494	511	14.1
Salvable dead trees[c]	65	479	544	14.7
Saplings[c]	460	9,195	9,656	5.6
Tops - growing stock	1,732	17,869	19,602	3.0
Tops - rough and rotten	23	957	980	9.0
All nongrowing stock	2,347	30,996	33,343	2.7
All classes	7,530	79,223	86,753	2.8
SE	11.4	2.9	2.8	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 124.--Net volume of all trees on timberland by class of timber and species group, Pocono Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	125.7	106.9	221.3	543.9	997.7	5.6
Upper stem	15.3	12.0	56.5	135.9	219.7	5.0
Total sawtimber trees	141.0	118.8	277.8	679.8	1,217.4	5.4
Poletimber trees	33.7	22.0	379.2	605.7	1,040.5	3.4
Total growing-stock trees	174.6	140.8	657.0	1,285.5	2,257.9	3.6
Rough trees:						
Sawtimber size	.9	1.0	8.6	13.4	23.9	15.1
Poletimber size	.2	.0	25.2	12.3	37.7	13.2
Total rough trees	1.0	1.0	33.9	25.7	61.6	11.5
Rotten trees:						
Sawtimber size	.3	.2	1.3	6.1	7.9	16.6
Poletimber size	.0	.0	1.2	1.3	2.5	19.6
Total rotten trees	.3	.2	2.5	7.3	10.3	14.4
Salvable dead[a] trees:						
Sawtimber size	.0	1.2	1.7	2.7	5.7	26.6
Poletimber size	.6	.3	3.0	3.7	7.6	19.2
Total salvable dead trees	.6	1.6	4.7	6.4	13.3	17.1
All classes	176.6	143.5	698.0	1,324.9	2,343.1	3.5
SE	18.2	17.7	6.4	4.4	3.5	

[a] Includes noncommercial species.

Table 125.--Net volume of growing-stock trees on timberland by species and diameter class, Pocono Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	3.8	8.1	14.5	12.2	16.4	8.3	3.4	.6	7.1	.0	74.4
Eastern hemlock	10.1	9.4	12.7	14.1	12.9	6.5	7.7	3.7	11.8	.0	88.8
Other softwoods	11.4	11.6	19.2	18.5	4.4	1.5	2.0	1.5	.8	.0	70.9
Total softwoods	25.3	29.1	46.3	44.8	33.6	16.3	13.2	5.8	19.7	.0	234.0
Red maple	67.9	63.5	55.6	38.7	18.9	5.6	5.8	.7	3.9	.7	261.2
Sugar maple	3.6	7.6	7.9	5.1	5.0	1.1	2.7	2.6	.9	.0	36.5
Yellow birch	1.6	2.5	1.7	.8	1.7	.0	.0	.0	.0	.0	8.2
Sweet birch	17.5	20.2	20.3	10.1	4.4	2.3	.6	.0	.0	.0	75.5
Hickory	4.1	5.0	8.7	3.9	1.8	1.2	1.4	.0	.0	.0	26.0
Beech	5.8	13.8	10.1	14.3	5.2	2.6	3.0	.9	.0	.0	55.7
White ash	5.4	7.0	9.3	12.5	5.2	2.5	5.8	.7	.0	.0	48.4
Yellow-poplar	1.2	.5	5.0	3.2	1.9	1.4	.7	1.1	1.4	.0	16.5
Blackgum	5.3	1.5	2.0	1.8	.0	1.6	.7	.5	.8	.0	14.2
Black cherry	6.4	5.7	8.0	5.7	6.5	1.4	1.8	.0	.0	.0	35.5
Chestnut oak	40.5	75.2	72.6	44.5	25.6	14.1	6.0	5.6	3.8	.0	287.9
Northern red oak	14.0	30.2	34.5	27.0	23.4	18.1	10.9	13.9	16.2	1.6	189.8
Select white oaks	30.6	50.1	54.3	41.1	25.8	24.8	18.7	6.1	9.7	.0	261.1
Other oaks	9.0	23.7	30.0	26.6	17.2	10.8	6.8	6.5	5.0	.0	135.6
Basswood	.7	1.8	1.7	.0	1.3	.0	1.0	.4	.0	.0	6.9
Other hardwoods	9.9	24.5	16.8	14.5	3.4	.6	.0	3.1	.0	.0	72.7
Total hardwoods	223.3	332.9	338.4	249.6	147.3	88.2	65.9	42.0	41.8	2.3	1,531.6
All species	248.5	361.9	384.7	294.4	180.9	104.5	79.1	47.8	61.5	2.3	1,765.6

Table 126.--Net volume of growing-stock trees on timberland by species and diameter class, Pocono Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	6.4	6.9	11.3	15.4	20.0	15.8	7.9	8.1	12.4	6.5	110.8	24.3
Virginia pine	1.8	4.7	6.7	7.2	4.0	.8	.5	.0	.0	.0	25.6	42.0
Other yellow pines	4.6	9.2	6.8	7.8	6.1	1.7	.9	1.0	.2	.0	38.2	23.5
Eastern hemlock	6.0	12.0	12.9	21.4	18.4	10.4	12.9	10.4	22.2	2.4	129.1	18.7
Other softwoods	1.6	2.4	2.0	2.7	1.1	.5	.5	.5	.4	.0	11.7	49.1
Total softwoods	20.3	35.3	39.6	54.5	49.6	29.1	22.8	19.9	35.3	8.9	315.4	12.8
Red maple	79.5	96.2	80.4	55.9	49.5	18.3	13.4	2.3	8.5	1.3	405.2	7.8
Sugar maple	5.3	6.6	5.9	8.9	5.1	2.1	2.7	1.9	4.1	.0	42.6	28.0
Yellow birch	1.5	3.1	2.1	2.7	1.2	.7	.0	.4	.0	.0	11.7	35.1
Sweet birch	24.5	31.9	28.6	21.0	13.4	4.5	2.0	.0	.4	.8	127.0	13.5
Hickory	2.8	9.0	7.7	9.2	2.9	5.0	1.7	.6	.0	.0	38.8	21.7
Beech	5.8	11.0	9.4	10.3	11.3	6.5	5.0	1.6	.5	.0	61.3	37.7
White ash	7.8	9.2	11.0	15.6	10.8	9.4	3.4	3.6	2.5	.6	74.0	17.2
Black walnut	.4	.2	.0	.0	1.6	.0	.5	.6	.0	.0	3.3	44.8
Yellow-poplar	1.4	.5	2.7	5.2	5.0	3.2	3.4	2.4	5.4	.0	29.2	25.1
Blackgum	8.8	7.0	2.7	4.2	1.1	.7	.6	.0	1.6	.0	26.7	18.9
Aspen	1.4	4.5	2.2	1.1	.5	.3	.0	.0	.0	.0	10.0	41.0
Black cherry	6.7	7.5	11.3	3.9	6.0	3.9	5.0	2.0	1.1	.0	47.4	20.1
Chestnut oak	43.4	72.8	84.0	63.4	32.3	27.1	12.5	8.2	6.8	.0	350.4	7.7
Northern red oak	13.4	28.6	33.1	38.4	38.9	35.7	15.9	15.8	23.2	4.6	247.4	8.1
Select white oaks	20.8	44.5	48.3	45.5	33.5	18.0	11.1	6.0	12.2	1.2	241.2	9.3
Other oaks	12.4	16.6	26.7	26.1	24.9	18.6	7.1	5.9	8.8	.8	147.7	12.6
Black locust	.9	1.5	2.7	2.5	3.4	1.1	.4	.3	.5	.0	13.3	51.8
Basswood	1.1	2.0	2.9	1.7	1.5	.9	.6	.5	.5	.0	11.7	37.2
Other hardwoods	5.3	14.9	12.4	10.4	7.1	1.1	1.6	.0	.8	.0	53.5	18.6
Total hardwoods	243.1	367.7	374.1	325.9	249.9	156.9	86.9	52.0	76.8	9.2	1,942.4	3.6
All species	263.4	403.0	413.7	380.4	299.5	186.1	109.7	71.9	112.1	18.1	2,257.9	3.6
SE	5.3	4.2	4.5	5.1	7.2	7.9	9.8	10.9	12.1	25.1	3.6	

Table 127.--Net volume of sawtimber trees on timberland by species and diameter class, Pocono Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	51.4	51.3	76.9	42.3	18.4	3.3	38.3	.0	281.9
Eastern hemlock	41.5	55.4	56.0	27.7	36.2	18.4	58.0	.0	293.1
Other softwoods	53.4	61.3	15.0	5.5	7.5	5.8	3.2	.0	151.6
Total softwoods	146.3	167.9	148.0	75.4	62.1	27.4	99.4	.0	726.6
Red maple	-	145.2	78.5	27.9	29.8	3.5	18.4	4.2	307.5
Sugar maple	-	19.4	19.4	4.4	11.4	12.8	3.8	.0	71.3
Yellow birch	-	1.1	1.8	.0	.0	.0	.0	.0	2.9
Sweet birch	-	29.2	12.6	8.0	2.1	.0	.0	.0	52.0
Hickory	-	16.7	8.0	6.5	8.2	.0	.0	.0	39.4
Beech	-	69.5	28.6	15.9	17.4	5.4	.0	.0	136.7
White ash	-	49.0	21.8	11.6	28.9	3.1	.0	.0	114.3
Yellow-poplar	-	15.4	10.4	6.9	4.3	5.1	8.6	.0	50.7
Blackgum	-	5.3	.0	5.8	2.0	1.4	4.1	.0	18.7
Black cherry	-	20.0	26.6	6.0	7.7	.0	.0	.0	60.2
Chestnut oak	-	133.9	84.2	50.8	22.1	21.7	15.8	.0	328.5
Northern red oak	-	100.4	94.0	80.3	47.7	68.4	77.8	9.2	477.7
Select white oaks	-	152.5	106.5	106.4	84.8	30.1	45.1	.0	525.4
Other oaks	-	87.2	63.3	44.1	27.3	29.6	24.0	.0	275.4
Basswood	-	.0	3.0	.0	2.3	1.0	.0	.0	6.3
Other hardwoods	-	51.1	13.2	2.8	.0	12.5	.0	.0	79.6
Total hardwoods	-	895.7	572.0	377.3	296.0	194.6	197.5	13.4	2,546.5
All species	146.3	1,063.6	720.0	452.7	358.2	222.0	296.9	13.4	3,273.1

Table 128.--Net volume of sawtimber trees on timberland by species and diameter class, Pocono Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	38.2	63.6	91.0	75.7	39.4	41.7	65.2	37.4	452.3	26.0
Virginia pine	23.5	27.1	15.3	3.6	2.4	.0	.0	.0	71.9	45.3
Other yellow pines	21.3	29.4	25.6	7.7	3.8	4.3	1.0	.0	93.1	26.2
Eastern hemlock	40.5	82.1	78.0	45.4	56.7	49.8	106.8	12.0	471.4	19.8
Other softwoods	6.3	10.9	4.8	2.1	2.5	2.4	2.2	.0	31.2	53.2
Total softwoods	129.8	213.2	214.8	134.5	104.7	98.2	175.3	49.4	1,119.9	14.1
Red maple	-	209.1	201.6	83.9	59.4	10.9	42.7	5.7	613.3	13.0
Sugar maple	-	33.6	21.3	8.7	10.5	7.6	19.0	.0	100.8	29.6
Yellow birch	-	10.2	4.4	2.6	.0	1.3	.0	.0	18.5	42.9
Sweet birch	-	82.8	55.1	19.5	9.6	.0	1.2	4.5	172.7	15.5
Hickory	-	37.5	11.8	23.1	8.5	3.1	.0	.0	83.9	29.4
Beech	-	42.8	48.2	29.1	23.7	7.9	2.2	.0	154.0	45.1
White ash	-	63.8	47.2	42.3	16.8	17.5	13.6	2.7	204.0	20.8
Black walnut	-	.0	7.5	.0	2.4	2.8	.0	.0	12.8	52.6
Yellow-poplar	-	21.1	22.0	14.4	16.2	12.7	28.5	.0	114.9	24.6
Blackgum	-	17.7	4.6	3.1	2.8	.0	9.1	.0	37.3	30.7
Aspen	-	4.5	2.3	.6	.0	.0	.0	.0	7.5	46.3
Black cherry	-	15.6	25.0	17.2	24.5	9.0	6.9	.0	98.2	27.1
Chestnut oak	-	234.6	128.3	112.0	53.5	35.5	30.7	.0	594.6	10.6
Northern red oak	-	144.7	159.3	156.4	71.6	75.7	114.1	26.8	748.8	10.0
Select white oaks	-	177.6	144.4	82.8	49.1	28.5	61.6	6.6	550.5	10.7
Other oaks	-	96.2	100.4	81.7	30.8	26.4	42.6	3.7	381.9	16.0
Black locust	-	9.4	13.9	4.8	1.1	1.4	2.4	.0	33.0	59.1
Basswood	-	5.8	6.8	4.6	2.7	2.5	2.6	.0	25.0	32.7
Other hardwoods	-	44.0	31.8	5.4	7.6	.0	3.5	.0	92.2	25.0
Total hardwoods	-	1,250.9	1,035.9	692.4	390.7	242.9	380.8	50.1	4,043.7	5.8
All species	129.8	1,464.1	1,250.7	826.8	495.4	341.2	556.1	99.4	5,163.5	5.7
SE	17.2	5.1	7.3	8.0	10.0	11.1	12.4	25.4	5.7	

Table 129.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Pocono Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	16.1	39.6	122.9	80.8	259.4	20.9	73.0	232.5	125.9	452.3
Virginia pine	.0	.0	6.0	-	6.0	.0	.5	71.4	-	71.9
Other yellow pines	.9	3.0	12.9	-	16.8	1.7	13.7	77.7	-	93.1
Eastern hemlock	270.7	-	-	-	270.7	471.4	-	-	-	471.4
Other softwoods	9.2	-	-	-	9.2	31.2	-	-	-	31.2
Total softwoods	297.0	42.6	141.8	80.8	562.1	525.2	87.2	381.6	125.9	1,119.9
Red maple	4.9	25.1	115.6	57.1	202.7	4.9	58.4	332.1	217.9	613.3
Sugar maple	9.7	7.6	19.5	9.1	45.8	10.2	10.1	49.0	31.5	100.8
Yellow birch	.1	1.0	2.6	.2	4.0	.2	1.2	10.1	6.9	18.5
Sweet birch	3.6	5.6	18.9	6.7	34.8	4.7	9.0	74.3	84.7	172.7
Hickory	1.9	8.4	16.8	7.6	34.6	1.9	11.2	49.5	21.3	83.9
Beech	.2	2.3	18.9	41.5	63.0	.6	3.7	57.9	91.8	154.0
White ash	14.7	32.3	24.9	21.1	93.0	14.7	52.5	85.2	51.5	204.0
Black walnut	.0	1.9	3.2	.2	5.3	.0	5.2	6.7	.9	12.8
Yellow-poplar	17.2	15.1	21.3	18.2	71.8	17.2	22.8	47.9	26.9	114.9
Blackgum	.0	4.8	9.0	1.3	15.1	.0	9.4	23.0	5.0	37.3
Aspen	.0	.0	.6	.0	.6	.0	1.6	2.6	3.3	7.5
Black cherry	15.7	14.4	21.6	5.9	57.6	15.7	22.6	45.8	14.2	98.2
Chestnut oak	14.9	62.6	96.2	58.1	231.7	15.9	99.5	305.8	173.3	594.6
Northern red oak	89.7	106.7	159.9	88.5	444.7	93.7	146.1	331.2	177.7	748.8
Select white oaks	35.6	67.8	67.5	57.6	228.5	38.5	116.9	235.6	159.5	550.5
Other oaks	28.6	45.5	62.0	49.1	185.2	28.6	67.3	148.4	137.7	381.9
Black locust	.0	1.8	2.2	5.7	9.7	.0	5.4	15.9	11.8	33.0
Basswood	.0	4.0	7.7	.7	12.4	.0	7.0	13.2	4.8	25.0
Other hardwoods	.0	3.6	8.7	4.1	16.4	1.6	10.0	39.3	41.4	92.2
Total hardwoods	236.8	410.4	677.2	432.4	1,756.8	248.4	659.8	1,873.4	1,262.0	4,043.7
Percent of hardwood in each grade	13	23	39	25	100	6	16	47	31	100

Table 130.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Pocono Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	42.4	62.1	97.0	33.4	24.6	259.4	54.1	123.7	194.7	48.5	31.4	452.3
Virginia pine	.0	.0	2.4	-	3.6	6.0	.0	1.0	66.0	-	4.8	71.9
Other yellow pines	1.7	5.8	8.2	-	1.0	16.8	3.2	25.5	61.3	-	3.2	93.1
Eastern hemlock	138.8	-	-	-	131.9	270.7	258.5	-	-	-	212.9	471.4
Other softwoods	4.7	-	-	-	4.5	9.2	19.0	-	-	-	12.2	31.2
Total softwoods	187.6	67.9	107.5	33.4	165.7	562.1	334.7	150.1	322.0	48.5	264.6	1,119.9
Red maple	5.3	32.8	83.3	42.9	38.3	202.7	5.3	69.5	307.6	169.5	61.3	613.3
Sugar maple	1.8	9.0	12.8	4.3	17.8	45.8	1.8	9.0	48.6	22.6	18.7	100.8
Yellow birch	.0	1.3	2.6	.0	.0	4.0	.0	1.3	11.1	6.1	.0	18.5
Sweet birch	2.3	9.1	10.9	5.6	6.8	34.8	2.3	12.4	63.6	79.9	14.6	172.7
Hickory	4.3	10.0	15.6	2.3	2.5	34.6	4.3	12.6	57.5	7.1	2.5	83.9
Beech	.0	3.8	7.6	39.8	11.7	63.0	.0	6.0	40.1	86.0	21.9	154.0
White ash	21.3	22.7	15.5	15.4	18.0	93.0	21.3	43.6	85.2	30.0	23.8	204.0
Black walnut	.0	2.8	.0	.0	2.4	5.3	.0	7.8	2.6	.0	2.4	12.8
Yellow-poplar	32.5	10.5	14.5	10.9	3.3	71.8	32.5	22.4	43.8	12.8	3.3	114.9
Blackgum	.0	2.2	10.3	.0	2.6	15.1	.0	4.3	27.8	1.3	4.0	37.3
Aspen	.0	.0	.0	.0	.6	.6	.0	2.3	1.5	3.0	.6	7.5
Black cherry	21.2	23.7	3.4	.0	9.4	57.6	21.2	35.4	27.7	3.1	10.9	98.2
Chestnut oak	15.6	66.0	108.7	18.2	23.2	231.7	15.6	113.2	346.1	88.3	31.4	594.6
Northern red oak	115.4	122.4	132.9	60.9	13.2	444.7	115.4	180.3	306.0	129.6	17.5	748.8
Select white oaks	39.0	94.0	62.1	23.3	10.0	228.5	39.0	152.2	267.4	74.5	17.3	550.5
Other oaks	43.3	53.1	56.2	26.1	6.6	185.2	43.3	80.1	173.3	78.7	6.6	381.9
Black locust	.0	2.6	.0	5.7	1.4	9.7	.0	8.1	14.4	9.2	1.4	33.0
Basswood	.0	6.5	5.1	.0	.8	12.4	.0	9.5	11.0	3.6	.8	25.0
Other hardwoods	.0	2.7	7.8	2.9	3.1	16.4	.0	10.0	41.8	35.5	4.9	92.2
Total hardwoods	302.1	475.3	549.3	258.3	171.8	1,756.8	302.1	780.1	1,877.0	840.6	243.9	4,043.7
All species	489.7	543.2	656.8	291.7	337.5	2,318.9	636.8	930.2	2,198.9	889.1	508.5	5,163.5

Table 131.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Pocono Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	288	3,206	231	739	14,599	561
Eastern hemlock	190	4,214	971	724	16,569	2,137
Other softwoods	822	566	186	962	4,025	569
Total softwoods	1,300	7,986	1,388	2,425	35,193	3,267
Red maple	1,332	13,445	1,697	694	27,054	1,888
Sugar maple	193	1,145	590	444	5,007	2,376
Yellow birch	139	445	129	375	1,353	0
Sweet birch	368	4,695	661	200	10,089	391
Hickory	76	1,247	230	0	3,777	145
Beech	430	1,047	606	700	1,999	584
White ash	253	2,656	510	213	9,882	2,382
Yellow-poplar	0	1,353	354	0	5,776	685
Blackgum	0	1,183	139	0	2,151	535
Black cherry	341	1,343	380	371	4,132	998
Chestnut oak	3,467	7,546	2,647	2,335	25,652	5,029
Northern red oak	750	7,365	2,859	1,454	29,654	8,646
Select white oaks	2,854	1,853	3,467	5,732	11,686	9,836
Other oaks	1,278	2,867	1,776	2,230	13,847	5,089
Basswood	0	399	0	0	1,536	0
Other hardwoods	1,092	1,747	1,175	749	6,966	1,456
Total hardwoods	12,573	50,340	17,222	15,497	160,563	40,040
All species	13,874	58,326	18,610	17,923	195,755	43,307

[a] Mortality is a component of net growth.

SOUTHEASTERN UNIT TABLES

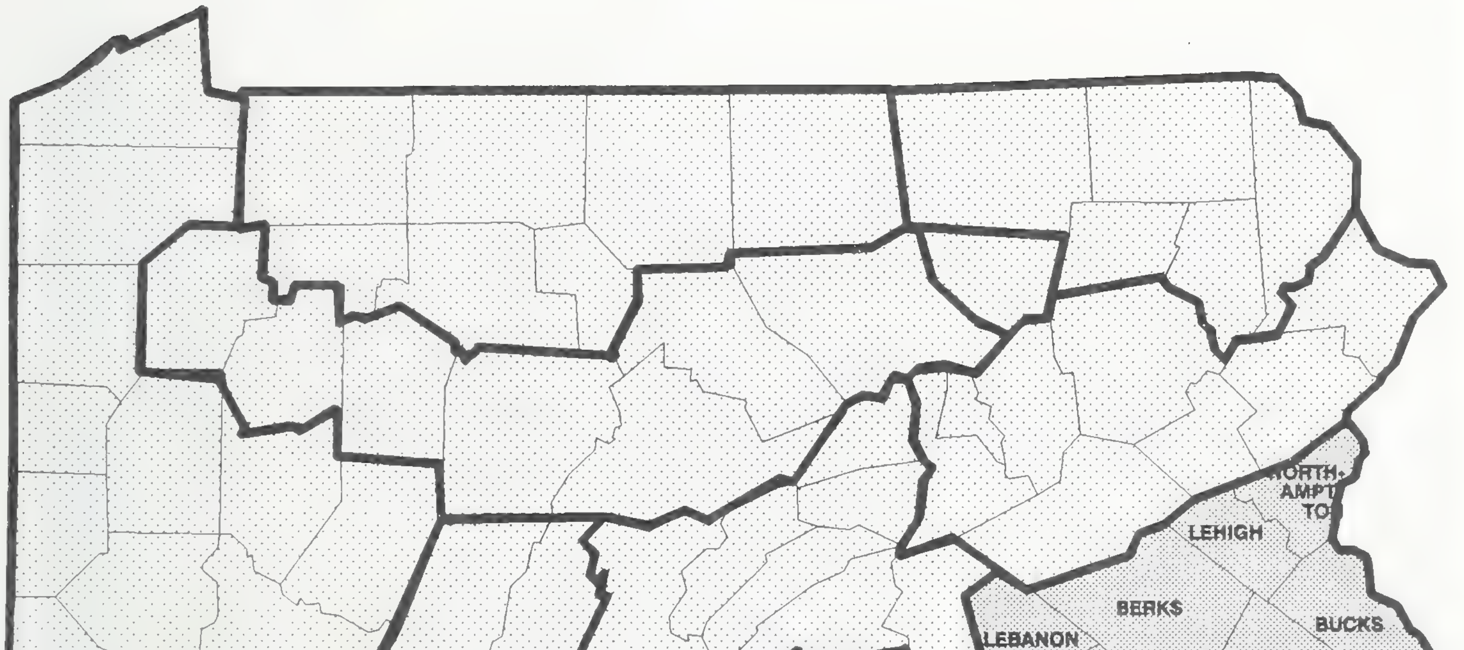

Table 132.--Area of timberland by forest type, forest-type group, and stand-size class, Southeastern Unit, Pennsylvania, 1989

(In thousands of acres)

Forest type	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
White pine	10.9	.0	.0	.0	10.9	70.8
White/red pine group	10.9	.0	.0	.0	10.9	70.8
White spruce	.0	5.5	.0	.0	5.5	100.0
Norway spruce	.0	5.8	.0	.0	5.8	100.0
Spruce/fir group	.0	11.2	.0	.0	11.2	70.7
Virginia pine	4.1	.0	.0	.0	4.1	100.0
Eastern redcedar	.0	.0	11.5	.0	11.5	70.8
Pitch pine	10.5	10.0	.0	.0	20.6	45.6
Loblolly/shortleaf group	14.7	10.0	11.5	.0	36.2	36.2
Wh. pine/no. red oak/wh. ash	3.7	.0	.0	.0	3.7	100.0
Other oak/pine	.0	10.7	.0	.0	10.7	70.7
Oak/pine group	3.7	10.7	.0	.0	14.4	58.5
Post, black, or bear oak	22.9	.0	.0	.0	22.9	52.1
Chestnut oak	55.1	62.9	5.4	.0	123.5	20.6
White oak/red oak/hickory	56.1	.0	5.5	.0	61.6	27.3
White oak	.0	10.2	.0	.0	10.2	70.7
Northern red oak	43.0	.0	.0	.0	43.0	33.8
Y. poplar/wh. oak/no. red oak	44.6	.0	.0	.0	44.6	35.9
Black walnut	4.1	5.4	5.5	.0	15.0	58.1
Yellow-poplar	40.3	6.3	.0	.0	46.6	31.6
Hawthorn/reverting field	.0	.0	16.3	.0	16.3	57.8
Scarlet oak	9.9	.0	.0	.0	9.9	71.6
Sassafras/persimmon	.0	.0	5.6	.0	5.6	100.0
Red maple/central hardwoods	.0	.0	5.1	.0	5.1	100.0
Mixed central hardwoods	245.1	108.2	46.3	.0	399.6	10.1
Oak/hickory group	521.2	193.0	89.7	.0	803.9	5.0
Black ash/Amer. elm/red maple	26.8	15.2	.0	.0	42.0	34.6
Red maple(lowland)	3.7	.0	.0	.0	3.7	100.0
Cottonwood	.0	6.0	.0	.0	6.0	100.0
Willow	5.6	11.5	.0	.0	17.1	57.9
American elm/green ash	5.6	5.5	5.3	.0	16.3	57.8
Elm/ash/red maple group	41.7	38.1	5.3	.0	85.1	24.4
Sugar maple/beech/yellow birch	.0	7.6	5.9	.0	13.5	71.2
Black cherry	10.8	.0	.0	.0	10.8	70.7
Pin cherry/reverting field	.0	.0	15.5	.0	15.5	58.2
Mixed northern hardwoods	43.3	11.0	24.9	.0	79.2	26.7
Northern hardwoods group	54.1	18.6	46.2	.0	118.9	20.5
All forest types	646.2	281.6	152.7	.0	1,080.5	3.4
SE	6.1	12.5	17.0	.0	3.4	

Table 133.--Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class, Southeastern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Diameter class (inches at breast height)							
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9
White and red pine	12,103	2,144	1,364	1,193	678	392	180	123
Virginia pine	878	378	105	207	159	130	114	21
Other yellow pines	0	931	429	445	523	447	221	105
Eastern hemlock	2,299	651	708	519	248	29	71	0
Other softwoods	7,537	3,015	1,034	1,280	329	106	58	15
Total softwoods	22,817	7,120	3,639	3,645	1,937	1,105	644	265
Red maple	44,153	18,235	9,068	4,163	2,873	973	595	308
Sugar maple	5,846	4,166	633	441	415	47	68	14
Yellow birch	321	0	59	126	73	0	19	0
Sweet birch	4,163	2,272	1,280	1,375	1,088	802	332	142
Hickory	11,323	5,458	2,400	2,225	1,760	850	915	335
Beech	5,541	624	709	145	213	161	126	75
White ash	21,844	5,874	3,427	2,003	1,581	934	520	664
Black walnut	1,867	1,690	1,435	545	378	267	105	87
Yellow-poplar	12,383	1,763	1,428	929	1,056	933	1,048	816
Blackgum	21,720	8,855	2,962	985	388	318	40	35
Aspen	361	721	428	382	200	0	18	15
Black cherry	20,853	3,519	1,979	833	286	179	229	125
Chestnut oak	3,367	3,863	5,614	6,126	4,020	2,646	2,080	990
Northern red oak	2,774	1,983	1,406	1,127	1,498	1,344	1,159	799
Select white oaks	2,967	326	1,337	734	963	696	560	529
Other oaks	2,513	2,286	1,547	2,285	2,179	1,690	1,283	1,058
Black locust	0	658	123	269	361	120	149	32
Basswood	301	0	0	107	20	0	0	0
Other hardwoods	39,009	14,598	4,043	1,919	525	353	252	185
Total hardwoods	201,306	76,891	39,879	26,719	19,877	12,313	9,498	6,209
All species	224,123	84,011	43,518	30,364	21,814	13,417	10,143	6,474
SE	9.1	8.3	7.0	7.1	6.4	6.7	6.3	7.6

Table 133.-continued

(In thousands of trees)

Species	Diameter class (inches at breast height)						
	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	Total 5.0+	All classes	SE
White and red pine	29	37	48	0	4,044	18,291	42.4
Virginia pine	0	0	11	0	747	2,004	49.3
Other yellow pines	56	25	0	0	2,252	3,183	42.3
Eastern hemlock	12	10	8	0	1,605	4,556	47.0
Other softwoods	0	0	0	0	2,822	13,374	31.8
Total softwoods	98	72	67	0	11,471	41,409	23.8
Red maple	183	99	59	22	18,345	80,733	11.8
Sugar maple	14	0	35	7	1,675	11,687	37.0
Yellow birch	0	0	6	0	282	603	75.4
Sweet birch	71	37	45	0	5,174	11,608	22.9
Hickory	214	97	65	0	8,862	25,644	13.5
Beech	86	50	52	13	1,630	7,795	31.5
White ash	238	198	133	53	9,751	37,469	18.2
Black walnut	33	27	17	0	2,894	6,451	37.1
Yellow-poplar	693	531	505	110	8,049	22,195	36.9
Blackgum	0	12	0	0	4,739	35,315	16.1
Aspen	0	0	0	0	1,041	2,123	84.9
Black cherry	55	32	24	0	3,743	28,115	17.9
Chestnut oak	467	242	179	0	22,364	29,594	14.9
Northern red oak	544	345	345	40	8,609	13,366	14.4
Select white oaks	264	141	174	18	5,416	8,709	18.9
Other oaks	723	293	467	46	11,573	16,372	18.0
Black locust	25	0	11	0	1,091	1,748	36.1
Basswood	0	0	0	0	127	427	77.5
Other hardwoods	85	49	35	26	7,471	61,078	15.9
Total hardwoods	3,696	2,154	2,155	336	122,837	401,034	6.2
All species	3,794	2,226	2,223	336	134,308	442,443	6.2
SE	8.0	9.6	10.1	21.3	4.7	6.2	

Table 134.--Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter group, Southeastern Unit, Pennsylvania, 1989

(In thousands of trees)

Species	Condition and diameter class									
	5.0-10.9	11.0-14.9	15+	Total intact	5.0-10.9	11.0-14.9	15+	Total broken	All classes	SE
White and red pine	111	80	14	205	467	33	19	520	724	66.2
Virginia pine	47	21	0	69	272	0	0	272	341	77.1
Other yellow pines	231	38	14	284	491	92	0	583	867	43.0
Eastern hemlock	65	0	0	65	72	18	13	103	169	83.7
Other softwoods	0	0	0	0	126	0	0	126	126	100.0
Total softwoods	455	140	28	623	1,429	143	33	1,605	2,227	30.6
Red maple	117	0	0	117	620	36	26	683	800	30.9
Yellow birch	0	0	0	0	73	0	0	73	73	71.0
Sweet birch	34	13	0	47	157	28	13	199	246	49.5
Hickory	128	43	0	171	192	55	56	302	474	32.2
White ash	343	0	15	359	439	108	25	572	931	44.1
Black walnut	0	0	0	0	46	0	0	46	46	100.0
Yellow-poplar	0	0	0	0	93	21	5	120	120	58.2
Black cherry	247	0	0	247	232	22	33	287	535	41.0
Chestnut oak	1,076	295	111	1,481	3,551	159	80	3,790	5,272	19.6
Northern red oak	921	253	134	1,308	437	60	51	547	1,855	25.3
Select white oaks	685	0	29	713	542	28	13	582	1,295	48.3
Other oaks	594	172	119	885	522	111	121	755	1,640	22.9
Black locust	197	0	0	197	123	0	0	123	320	50.9
Other commercial hardwoods	692	31	0	723	656	39	0	695	1,418	28.6
Noncommercial hardwoods	399	0	0	399	894	70	10	974	1,373	29.9
Total hardwoods	5,433	807	408	6,648	8,579	737	433	9.749	16.398	10.2
All species	5,888	947	436	7,271	10,008	881	466	11,354	18,625	9.6
SE	16.3	20.7	20.0	14.2	11.9	18.1	17.8	10.8	9.6	

Table 135.--Number of seedlings, saplings, and shrubs on timberland by species and stand-size class, Southeastern Unit, Pennsylvania, 1989

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Common juniper	0	0	1	0	1	100.0
Eastern redcedar	1	23	4	0	28	53.4
Larch	0	2	0	0	2	100.0
Spruce species	1	1	0	0	2	70.7
Pitch pine	0	1	0	0	1	75.0
Eastern white pine	17	10	0	0	27	35.4
Virginia pine	4	1	0	0	5	62.1
Eastern hemlock	16	0	0	0	16	67.1
Maple species	2	0	3	0	5	72.2
Boxelder	17	3	1	0	21	43.3
Striped maple	18	0	11	0	29	56.3
Red maple	176	121	53	0	350	14.2
Silver maple	0	0	2	0	2	83.5
Sugar maple	33	29	4	0	67	32.7
Alder species	16	0	1	0	17	94.2
Serviceberry	6	3	0	0	9	43.2
Chokeberry species	7	0	0	0	7	100.0
Azalea species	87	15	0	0	101	37.2
Common pawpaw	21	0	0	0	21	61.4
Barberry	58	0	0	0	58	61.3
Yellow birch	8	0	0	0	8	96.3
Sweet birch	41	22	28	0	91	34.3
River birch	0	5	0	0	5	100.0
Gray birch	6	0	0	0	6	100.0
American hornbeam	21	3	0	0	24	31.3
Hickory species	52	20	1	0	73	17.0
Bitternut hickory	13	0	0	0	13	54.6
American chestnut	19	4	0	0	23	44.0
Hackberry	6	0	13	0	19	71.3
Eastern redbud	17	3	0	0	21	70.8
Flowering dogwood	125	11	46	0	182	22.3
Alternate-leaved dogwood	0	0	1	0	1	100.0
Silky dogwood	23	17	0	0	40	61.1
Panicled dogwood	10	6	25	0	41	66.7
Red-osier dogwood	120	31	59	0	210	44.0
Hawthorn species	7	8	31	0	46	50.6
Beaked hazelnut	3	0	0	0	3	100.0
Common persimmon	1	0	0	0	1	100.0
American beech	41	1	2	0	43	40.5
Russian olive	1	0	20	0	21	70.9
White ash	204	42	63	0	309	17.0
Green ash	1	2	2	0	5	59.7
Huckleberry	27	0	0	0	27	100.0
Witch-hazel	66	78	11	0	155	22.8
Butternut	5	0	0	0	5	93.5
Black walnut	3	4	7	0	15	34.1
Mountain laurel	215	135	1	0	351	27.4
Common spicebush	663	138	78	0	880	12.8
Sweetgum	1	0	0	0	1	100.0
Yellow-poplar	66	4	31	0	101	41.8
Bush honeysuckle	55	63	41	0	160	31.6
Apple species	0	0	0	0	0	100.0
Mulberry species	0	1	0	0	1	100.0
Red mulberry	0	1	0	0	1	100.0
Black tupelo	90	32	21	0	144	19.9
Eastern hophornbeam	14	4	0	0	19	49.4
American sycamore	0	1	0	0	1	70.7
Eastern cottonwood	0	10	0	0	10	89.6
Bigtooth aspen	0	2	3	0	5	54.3
Cherry species	20	0	0	0	20	53.3
Pin cherry	1	0	3	0	4	85.4

Table 135.-continued

(In millions of stems)

Species	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Black cherry	291	97	61	0	449	14.9
Chokecherry	0	1	0	0	1	74.6
White oak	25	1	0	0	26	40.3
Swamp white oak	3	0	0	0	3	100.0
Scarlet oak	4	1	18	0	24	77.1
Scrub, bear oak	67	9	0	0	77	50.4
Pin oak	0	0	0	0	1	70.7
Chestnut oak	52	34	1	0	88	25.1
Northern red oak	37	19	8	0	64	24.8
Black oak	5	1	10	0	16	46.3
Buckthorn species	1	0	0	0	1	100.0
Rhododendron species	0	0	1	0	1	100.0
Smooth sumac	2	0	1	0	3	74.3
Staghorn sumac	3	5	27	0	36	53.2
Black locust	0	0	1	0	2	67.0
Rose species	343	144	220	0	708	20.2
Rubus species	633	217	499	0	1,349	19.2
Black willow	0	1	0	0	1	100.0
American elderberry	6	0	5	0	10	70.9
Red-berried alder	0	2	0	0	2	100.0
Sassafras	123	104	35	0	261	17.2
Spirea species	3	0	0	0	3	100.0
American basswood	1	0	0	0	1	80.7
Elm species	0	0	0	0	0	100.0
American elm	13	7	2	0	22	32.6
Slippery elm	7	2	8	0	17	49.8
Blueberry	1,171	1,419	182	0	2,772	19.8
Viburnum species	239	62	12	0	313	28.7
Maple-leaved viburnum	312	139	3	0	454	34.7
Hobblebush viburnum	14	0	0	0	14	100.0
Wild raisin	1	0	0	0	1	100.0
Arrowwood	255	53	53	0	362	38.0
Nannyberry	2	230	0	0	232	82.6
Blackhaw	199	47	7	0	253	27.3
Unknown deciduous shrub	49	73	164	0	286	56.4
Unknown evergreen shrub	2	0	3	0	5	72.2
Unknown tree	20	3	51	0	74	45.7
All species	6,314	3,533	1,945	0	11,792	7.0
SE	10.9	15.4	22.9	.0	7.0	

Table 136.--Net dry weight[a] of all trees on timberland by class of material and species group, Southeastern Unit, Pennsylvania, 1989

(In thousands of tons)

Class of material	Species group		All groups	SE
	Softwoods	Hardwoods		
Sawtimber trees:				
Sawlog portion	1,061	24,132	25,193	5.2
Upper stem	141	5,253	5,394	5.1
Total sawtimber trees	1,202	29,385	30,587	5.2
Poletimber trees	487	11,046	11,533	5.5
All growing stock	1,689	40,431	42,120	4.3
Rough cull trees[b]	31	1,893	1,924	17.2
Rotten cull trees[b]	9	571	580	15.4
Salvable dead trees[c]	85	361	446	27.1
Saplings[c]	287	4,272	4,558	7.6
Tops - growing stock	620	13,807	14,428	4.2
Tops - rough and rotten	15	866	881	13.5
All nongrowing stock	1,046	21,771	22,817	4.3
All classes	2,735	62,203	64,938	4.1
SE	19.7	4.3	4.1	

[a] Includes bark and sound cull; excludes rotten cull.

[b] Bole portion of trees 5.0 inches d.b.h. and larger.

[c] Includes entire tree aboveground.

Table 137.--Net volume of all trees on timberland by class of timber and species group, Southeastern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Class of timber	Species group				All groups	SE
	Pines	Other softwoods	Soft hardwoods	Hard hardwoods		
Sawtimber trees:						
Sawlog portion	54.1	10.2	375.7	618.1	1,058.1	5.6
Upper stem	7.1	1.5	80.2	138.6	227.4	5.4
Total sawtimber trees	61.2	11.7	455.9	756.7	1,285.5	5.6
Poletimber trees	15.9	14.8	202.5	276.6	509.8	5.6
Total growing-stock trees	77.1	26.6	658.4	1,033.2	1,795.3	4.6
Rough trees:						
Sawtimber size	.0	.4	24.6	8.9	33.9	23.9
Poletimber size	.0	.4	14.8	3.7	18.9	16.0
Total rough trees	.0	.8	39.3	12.6	52.8	17.7
Rotten trees:						
Sawtimber size	.4	.0	7.4	4.1	11.9	18.8
Poletimber size	.0	.0	2.0	1.7	3.6	25.8
Total rotten trees	.4	.0	9.4	5.8	15.5	16.5
Salvable dead[a] trees:						
Sawtimber size	3.8	.0	1.1	3.7	8.6	48.7
Poletimber size	.0	.2	2.0	.3	2.4	50.5
Total salvable dead trees	3.8	.2	3.1	4.0	11.0	41.4
All classes	81.3	27.6	710.2	1,055.6	1,874.6	4.5
SE	24.8	44.1	9.0	6.0	4.5	

[a] Includes noncommercial species.

Table 138.--Net volume of growing-stock trees on timberland by species and diameter class, Southeastern Unit, Pennsylvania, 1978

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	4.5	5.4	6.4	3.8	3.4	1.7	4.2	.9	3.5	.0	33.8
Eastern hemlock	.7	.7	.9	1.2	.6	1.4	.0	1.0	.0	.0	6.5
Other softwoods	4.0	6.0	9.5	11.7	7.1	2.6	.0	.0	.0	.0	40.9
Total softwoods	9.2	12.1	16.8	16.7	11.1	5.7	4.2	1.8	3.5	.0	81.3
Red maple	14.9	16.8	19.1	17.1	12.1	5.4	4.3	2.2	2.6	4.3	98.9
Sugar maple	1.1	5.2	3.2	.0	1.4	.0	.0	.0	.0	.0	10.9
Yellow birch	.1	1.1	.4	.4	.0	.0	.0	.0	.5	.0	2.6
Sweet birch	6.0	5.2	10.3	5.4	4.5	2.8	2.4	1.7	3.6	.0	42.0
Hickory	6.6	13.2	18.4	21.6	18.2	11.5	7.5	6.2	6.7	1.3	111.1
Beech	.4	1.9	1.4	2.4	1.4	3.0	2.1	.7	2.5	1.2	17.1
White ash	9.4	14.9	9.6	11.4	12.3	9.8	8.6	4.7	8.1	5.7	94.5
Yellow-poplar	5.3	7.6	17.5	22.5	22.7	37.7	17.2	23.3	43.1	18.8	215.7
Blackgum	1.4	6.8	5.6	5.3	3.2	.6	.7	.0	.0	.0	23.7
Black cherry	2.4	2.8	2.3	3.9	1.8	2.0	.7	.7	.0	.0	16.6
Chestnut oak	19.0	34.5	46.4	46.6	41.8	25.8	13.5	8.6	7.2	.0	243.4
Northern red oak	9.5	17.0	34.6	29.4	25.5	19.4	20.4	11.5	19.6	3.0	189.9
Select white oaks	4.3	10.9	16.0	15.2	27.6	14.4	16.8	7.1	7.1	2.6	122.0
Other oaks	8.4	22.1	31.3	41.5	43.9	32.6	38.1	28.2	38.7	3.2	288.0
Basswood	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.1
Other hardwoods	11.0	17.1	9.4	12.0	6.5	9.5	3.0	1.7	6.4	2.8	79.4
Total hardwoods	99.7	177.3	225.6	234.7	222.9	174.6	135.4	96.6	146.1	42.9	1,555.8
All species	108.9	189.4	242.4	251.4	234.0	180.3	139.6	98.5	149.6	42.9	1,637.0

Table 139.--Net volume of growing-stock trees on timberland by species and diameter class, Southeastern Unit, Pennsylvania, 1989

(In millions of cubic feet)

Species	Diameter class (inches at breast height)										All classes	SE
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	3.5	7.1	8.1	6.9	4.6	4.1	1.3	2.1	4.1	.0	41.7	35.2
Virginia pine	.5	1.4	1.7	1.8	2.4	.6	.0	.0	.5	.0	8.9	45.4
Other yellow pines	1.0	2.5	4.9	6.6	5.0	3.1	2.3	1.1	.0	.0	26.5	34.5
Eastern hemlock	1.9	2.9	2.3	.4	1.6	.0	.4	.2	.5	.0	10.2	38.4
Other softwoods	2.7	7.4	3.1	1.5	1.2	.5	.0	.0	.0	.0	16.4	67.8
Total softwoods	9.5	21.2	20.2	17.3	14.7	8.2	4.0	3.4	5.1	.0	103.7	21.8
Red maple	21.6	23.5	30.5	16.4	14.6	10.0	8.2	5.1	4.3	3.1	137.3	13.0
Sugar maple	2.1	2.6	4.0	1.0	1.5	.6	.6	.0	2.1	.9	15.3	38.1
Yellow birch	.1	.8	.7	.0	.4	.0	.0	.0	.4	.0	2.4	71.7
Sweet birch	4.0	8.9	13.7	14.3	9.2	5.1	3.7	2.0	4.1	.0	65.0	25.6
Hickory	5.4	14.9	19.5	17.2	23.2	11.5	9.5	6.2	6.0	.0	113.5	16.3
Beech	2.2	1.0	2.7	2.8	3.5	3.1	4.0	3.5	4.8	2.0	29.6	25.5
White ash	9.8	13.8	18.5	16.9	13.6	24.3	10.4	11.8	10.0	7.2	136.2	15.0
Black walnut	3.4	2.4	3.9	4.1	2.4	2.8	1.1	1.5	1.4	.0	23.0	30.4
Yellow-poplar	4.0	6.6	14.5	20.8	33.8	36.3	39.1	35.1	52.8	21.9	265.0	16.8
Blackgum	6.7	6.0	4.3	6.4	1.1	1.2	.0	.6	.0	.0	26.2	21.7
Aspen	1.4	2.6	2.3	.0	.5	.6	.0	.0	.0	.0	7.3	66.0
Black cherry	4.8	5.0	2.4	3.1	5.7	3.6	2.3	1.8	1.7	.0	30.3	25.2
Chestnut oak	12.9	33.9	39.9	41.2	47.1	29.4	18.3	12.3	11.0	.0	245.9	13.7
Northern red oak	4.2	7.1	18.2	24.8	30.7	28.4	24.3	19.3	27.3	5.8	190.1	15.3
Select white oaks	3.0	3.9	10.3	11.3	12.7	17.1	10.3	7.7	12.3	2.4	91.0	13.1
Other oaks	4.3	14.8	26.2	30.8	34.0	37.2	33.3	16.7	39.7	7.6	244.4	11.9
Black locust	.4	1.2	3.4	2.0	2.7	1.0	1.1	.0	.6	.0	12.3	31.6
Basswood	.0	.5	.2	.0	.0	.0	.0	.0	.0	.0	.7	61.9
Other hardwoods	8.8	10.1	5.5	6.0	7.0	6.1	3.6	2.9	2.5	3.7	56.0	23.2
Total hardwoods	98.9	159.5	220.7	219.0	243.7	218.3	169.6	126.4	180.9	54.6	1,691.6	4.8
All species	108.4	180.7	240.9	236.3	258.5	226.5	173.6	129.9	186.0	54.6	1,795.3	4.6
SE	7.2	7.2	6.6	7.0	6.6	8.1	8.2	9.8	10.8	25.5	4.6	

Table 140.--Net volume of sawtimber trees on timberland by species and diameter class, Southeastern Unit, Pennsylvania, 1978

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
White and red pine	23.1	16.6	15.7	9.0	22.0	3.9	19.0	.0	109.3
Eastern hemlock	2.4	4.0	2.4	5.6	.0	3.4	.0	.0	17.7
Other softwoods	29.7	44.2	30.0	10.5	.0	.0	.0	.0	114.5
Total softwoods	55.3	64.7	48.0	25.0	22.0	7.3	19.0	.0	241.5
Red maple	-	51.4	42.2	20.6	15.7	8.4	15.5	20.6	174.3
Sugar maple	-	.0	27.2	.0	.0	.0	.0	.0	27.2
Yellow birch	-	1.4	.0	.0	.0	.0	2.1	.0	3.5
Sweet birch	-	15.2	13.4	8.5	8.4	6.2	14.0	.0	65.6
Hickory	-	74.2	68.5	46.4	33.4	30.4	29.2	8.3	290.4
Beech	-	9.1	5.0	12.8	10.2	2.5	11.5	6.1	57.3
White ash	-	39.2	49.6	38.7	39.4	22.5	41.1	27.6	258.2
Yellow-poplar	-	85.3	97.7	179.0	83.0	107.6	227.3	108.9	888.7
Blackgum	-	16.2	11.4	2.3	3.2	.0	.0	.0	33.0
Black cherry	-	10.5	4.9	7.4	2.3	2.8	.0	.0	28.0
Chestnut oak	-	135.3	135.8	87.0	49.4	31.1	27.8	.0	466.4
Northern red oak	-	97.5	96.4	76.5	87.0	52.4	97.1	16.6	523.6
Select white oaks	-	49.9	101.0	58.5	73.5	34.1	30.8	14.9	362.7
Other oaks	-	126.8	154.9	122.7	156.4	116.4	165.7	14.1	857.1
Other hardwoods	-	45.5	28.4	44.8	12.1	10.0	39.2	18.8	198.8
Total hardwoods	-	757.2	836.5	705.3	574.0	424.4	701.3	236.0	4,234.8
All species	55.3	822.0	884.5	730.4	596.1	431.7	720.3	236.0	4,476.2

Table 141.--Net volume of sawtimber trees on timberland by species and diameter class, Southeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	Diameter class (inches at breast height)								All classes	SE
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+		
White and red pine	26.6	27.8	20.6	19.6	5.8	11.5	22.4	.0	134.4	38.8
Virginia pine	4.8	6.3	7.6	2.0	.0	.0	2.3	.0	22.9	41.9
Other yellow pines	15.4	25.6	20.6	13.6	10.7	4.7	.0	.0	90.6	36.5
Eastern hemlock	7.3	1.2	6.9	.0	1.8	.6	2.1	.0	20.0	42.9
Other softwoods	8.7	5.6	4.7	1.9	.0	.0	.0	.0	21.0	69.0
Total softwoods	62.8	66.6	60.4	37.2	18.3	16.9	26.8	.0	288.9	23.8
Red maple	-	54.5	58.2	43.0	33.8	21.2	19.3	15.8	245.8	19.9
Sugar maple	-	3.3	4.7	2.9	2.6	.0	12.0	5.7	31.2	63.0
Yellow birch	-	.0	1.6	.0	.0	.0	1.9	.0	3.5	100.0
Sweet birch	-	56.7	40.2	22.5	17.2	8.5	20.6	.0	165.8	27.3
Hickory	-	60.1	100.7	48.9	43.3	28.7	29.5	.0	311.2	21.1
Beech	-	9.9	12.4	14.3	16.7	17.5	23.6	9.8	104.3	27.7
White ash	-	60.9	55.0	102.1	44.2	52.9	46.7	35.0	396.7	17.3
Black walnut	-	14.2	9.8	12.0	4.4	6.0	6.9	.0	53.3	29.0
Yellow-poplar	-	79.8	140.4	171.9	195.0	181.2	281.6	129.2	1,179.0	18.4
Blackgum	-	21.6	4.1	4.5	.0	2.4	.0	.0	32.6	27.0
Aspen	-	.0	2.3	2.9	.0	.0	.0	.0	5.1	71.2
Black cherry	-	10.6	21.3	14.3	9.9	8.5	9.0	.0	73.5	34.6
Chestnut oak	-	142.8	179.5	120.2	79.6	53.9	52.9	.0	628.9	16.2
Northern red oak	-	81.1	119.1	119.6	104.0	86.4	133.9	31.7	675.8	15.9
Select white oaks	-	43.5	53.6	73.9	47.5	37.4	59.2	12.7	327.8	14.2
Other oaks	-	104.9	133.5	156.1	144.3	78.6	186.7	41.4	845.5	12.6
Black locust	-	7.7	10.3	3.4	5.0	.0	2.9	.0	29.3	35.9
Other hardwoods	-	20.8	29.5	26.3	16.3	12.1	12.4	20.7	138.1	34.1
Total hardwoods	-	772.6	976.2	938.6	763.8	595.2	899.1	301.9	5,247.4	6.2
All species	62.8	839.1	1,036.6	975.8	782.1	612.1	925.8	301.9	5,536.3	5.9
SE	28.1	7.2	6.6	8.3	8.3	10.0	11.2	27.1	5.9	

Table 142.--Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade, Southeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height					All size classes				
	Grade 1	Grade 2	Grade 3	Grade 4	All grades	Grade 1	Grade 2	Grade 3	Grade 4	All grades
White and red pine	12.1	7.6	24.1	15.5	59.3	16.7	15.0	57.9	44.8	134.4
Virginia pine	.0	.0	4.3	-	4.3	.0	.0	22.9	-	22.9
Other yellow pines	8.2	1.1	19.7	-	29.0	12.8	8.3	69.5	-	90.6
Eastern hemlock	4.6	-	-	-	4.6	20.0	-	-	-	20.0
Other softwoods	1.9	-	-	-	1.9	21.0	-	-	-	21.0
Total softwoods	26.8	8.7	48.1	15.5	99.1	70.4	23.4	150.3	44.8	288.9
Red maple	5.7	7.5	64.9	54.9	133.0	5.7	10.8	118.9	110.3	245.8
Sugar maple	7.3	5.9	5.4	4.5	23.2	7.4	7.6	8.9	7.4	31.2
Yellow birch	.0	.0	1.9	.0	1.9	.0	.0	1.9	1.6	3.5
Sweet birch	11.3	8.7	29.5	19.4	68.8	12.1	9.5	69.6	74.6	165.8
Hickory	4.6	27.1	72.0	46.7	150.4	4.6	44.6	149.4	112.7	311.2
Beech	.2	.0	32.0	49.7	82.0	.2	.0	35.6	68.5	104.3
White ash	55.9	77.7	101.4	45.9	280.9	58.9	95.1	156.5	86.2	396.7
Black walnut	4.2	6.9	16.8	1.4	29.3	5.4	8.1	28.2	11.7	53.3
Yellow-poplar	176.1	168.4	258.8	355.5	958.8	176.1	194.1	329.5	479.4	1,179.0
Blackgum	.0	.0	5.8	1.1	6.9	.0	3.3	18.0	11.3	32.6
Aspen	.0	.0	.1	2.8	2.9	.0	.0	2.0	3.2	5.1
Black cherry	6.7	1.3	24.1	9.4	41.6	6.7	1.3	45.4	20.1	73.5
Chestnut oak	34.6	81.2	103.1	87.8	306.6	34.6	122.2	258.3	213.8	628.9
Northern red oak	56.8	112.5	175.8	130.4	475.6	58.0	131.0	258.0	228.7	675.8
Select white oaks	18.8	37.0	69.8	105.1	230.7	18.8	51.8	111.2	146.0	327.8
Other oaks	85.6	122.1	165.9	233.5	607.1	86.6	149.3	234.5	375.1	845.5
Black locust	.0	.0	3.3	8.0	11.3	.0	.0	16.0	13.3	29.3
Other hardwoods	6.3	18.1	36.7	26.7	87.7	6.3	25.4	61.9	44.6	138.1
Total hardwoods	474.1	674.5	1,167.1	1,182.9	3,498.7	481.3	854.0	1,903.7	2,008.4	5,247.4
Percent of hardwood in each grade	14	19	33	34	100	9	16	37	38	100

Table 143.--Net volume of sawtimber trees on timberland by species, size class, and tree grade, Southeastern Unit, Pennsylvania, 1989

(In millions of board feet)

Species	>15" Diameter at breast height						All size classes					
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	All grades
White and red pine	31.8	3.6	11.9	6.8	5.2	59.3	43.9	13.6	38.8	16.0	22.0	134.4
Virginia pine	.0	.0	4.3	-	.0	4.3	.0	.0	21.8	-	1.1	22.9
Other yellow pines	15.5	.0	11.5	-	2.0	29.0	24.1	13.6	50.2	-	2.8	90.6
Eastern hemlock	2.1	-	-	-	2.4	4.6	16.0	-	-	-	4.0	20.0
Other softwoods	.0	-	-	-	1.9	1.9	16.8	-	-	-	4.1	21.0
Total softwoods	49.5	3.6	27.6	6.8	11.6	99.1	100.8	27.2	110.9	16.0	34.0	288.9
Red maple	9.3	8.3	29.5	50.3	35.6	133.0	9.3	13.2	77.6	99.9	45.8	245.8
Sugar maple	5.0	7.0	.0	2.6	8.6	23.2	5.0	9.4	3.3	4.9	8.6	31.2
Yellow birch	.0	.0	.0	.0	1.9	1.9	.0	.0	.0	1.6	1.9	3.5
Sweet birch	13.6	8.3	26.8	17.0	3.1	68.8	13.6	8.3	67.9	69.2	6.7	165.8
Hickory	10.5	34.5	72.1	26.4	6.8	150.4	10.5	58.8	157.2	73.5	11.2	311.2
Beech	.0	.0	20.9	46.2	14.9	82.0	.0	.0	22.9	65.3	16.1	104.3
White ash	86.6	65.8	74.0	21.1	33.4	280.9	86.6	87.5	137.8	47.0	37.9	396.7
Black walnut	4.9	8.1	6.1	.0	10.2	29.3	4.9	11.2	17.0	8.5	11.7	53.3
Yellow-poplar	330.0	169.9	140.6	274.0	44.3	958.8	330.0	212.7	208.1	380.1	48.0	1,179.0
Blackgum	.0	.0	6.9	.0	.0	6.9	.0	4.1	19.2	8.2	1.1	32.6
Aspen	.0	.0	.0	2.9	.0	2.9	.0	.0	2.3	2.9	.0	5.1
Black cherry	11.2	.0	6.8	7.0	16.6	41.6	11.2	.0	26.1	14.6	21.6	73.5
Chestnut oak	48.2	105.9	80.9	61.0	10.7	306.6	48.2	156.8	253.6	145.0	25.3	628.9
Northern red oak	69.3	140.1	140.8	88.4	37.0	475.6	69.3	167.0	222.7	175.9	40.9	675.8
Select white oaks	24.0	51.8	70.5	68.9	15.4	230.7	24.0	70.9	119.0	97.1	16.7	327.8
Other oaks	143.8	160.5	121.7	154.3	26.8	607.1	143.8	201.9	205.4	266.7	27.7	845.5
Black locust	.0	.0	1.5	7.9	1.9	11.3	.0	.0	10.1	11.9	7.3	29.3
Other hardwoods	10.8	21.2	20.2	17.6	17.9	87.7	10.8	32.8	44.1	28.2	22.2	138.1
Total hardwoods	767.2	781.4	819.4	845.5	285.1	3,498.7	767.2	1,034.7	1,594.2	1,500.5	350.7	5,247.4
All species	816.7	785.1	846.9	852.4	296.7	3,597.8	868.1	1,061.9	1,705.1	1,516.5	384.7	5,536.3

Table 144.--Average annual mortality, average annual net growth, and average annual removals of growing-stock and sawtimber volume on timberland by species, Southeastern Unit, Pennsylvania, 1977-88

	Growing stock (In thousands of cubic feet)			Sawtimber (In thousands of board feet)		
	Mortality[a]	Net growth	Removals	Mortality[a]	Net growth	Removals
White and red pine	82	1,233	566	361	3,951	1,837
Eastern hemlock	123	459	152	596	665	474
Other softwoods	750	941	49	2,080	1,811	184
Total softwoods	955	2,632	767	3,037	6,427	2,495
Red maple	757	4,016	810	822	8,177	2,202
Sugar maple	0	602	230	0	667	335
Yellow birch	62	-15	0	0	-6	0
Sweet birch	281	2,252	335	1,073	8,525	177
Hickory	1,162	2,018	1,821	2,553	9,955	8,219
Beech	0	1,181	142	0	4,709	788
White ash	1,161	4,474	1,006	2,833	14,579	3,031
Yellow-poplar	807	9,573	5,461	2,965	49,820	25,630
Blackgum	0	636	419	0	1,060	1,093
Black cherry	302	1,414	269	432	4,239	440
Chestnut oak	3,093	3,347	3,095	6,605	21,631	8,047
Northern red oak	1,997	3,295	3,274	3,465	24,179	11,500
Select white oaks	931	1,149	3,715	1,373	10,403	13,218
Other oaks	3,376	3,562	7,194	9,462	24,286	25,254
Basswood	0	48	0	0	0	0
Other hardwoods	959	2,507	901	1,064	5,902	3,650
Total hardwoods	14,889	40,059	28,673	32,647	188,128	103,585
All species	15,843	42,692	29,441	35,683	194,555	106,081

[a] Mortality is a component of net growth.

COUNTY TABLES

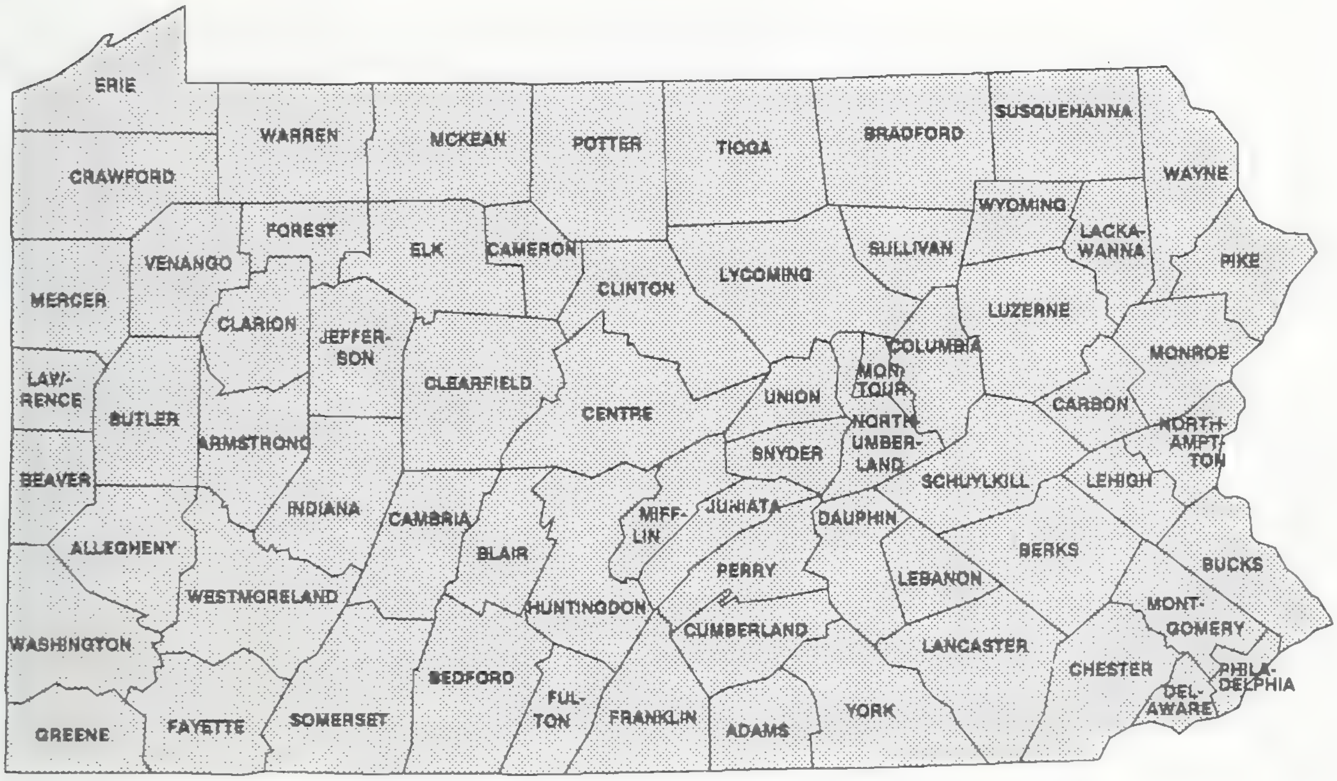

Table 145.--Land area by county, geographic unit, and land class, Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Land class						All classes
	Timberland	Other forest land	Reserved prod. forest land	Reserved other forest land	Total forest land	Nonforest land	
Allegheny	127.9	.0	38.5	.0	166.4	298.8	465.2
Armstrong	214.3	.0	12.1	.8	227.3	186.3	413.6
Butler	235.7	.0	18.8	.0	254.5	250.3	504.8
Crawford	301.8	5.4	6.9	1.0	315.1	331.8	646.9
Erie	219.6	10.7	7.9	t	238.2	276.2	514.4
Greene	205.3	.0	1.1	.0	206.4	162.7	369.1
Indiana	312.6	.0	8.5	1.7	322.8	207.9	530.7
Mercer	152.1	12.2	2.0	1.6	167.8	262.2	429.9
Washington	267.4	.0	6.1	.0	273.4	275.8	549.2
Westmoreland	318.4	.0	12.0	1.3	331.7	329.4	661.1
Beaver/Lawrence	214.8	.0	15.7	.0	230.5	280.8	511.3
Western Unit	2,569.7	28.2	129.8	6.4	2,734.2	2,862.1	5,596.3
Bedford	435.4	.0	29.1	.0	464.5	186.2	650.6
Blair	210.9	4.5	1.1	.0	216.5	121.0	337.4
Cambria	276.3	.0	4.7	.0	281.0	161.3	442.3
Fayette	281.8	.0	25.0	.0	306.8	201.2	508.0
Somerset	421.2	.0	25.0	.0	446.2	240.8	686.9
Southwestern Unit	1,625.6	4.5	84.8	.0	1,714.9	910.4	2,625.2
Cameron	181.3	.0	57.4	.0	238.7	16.4	255.0
Elk	463.5	.0	18.1	.1	481.7	49.5	531.1
Forest	250.2	.0	2.6	1.4	254.2	19.5	273.7
McKean	520.5	.0	3.5	.0	524.0	102.4	626.3
Potter	545.3	.0	48.0	.0	593.3	98.7	692.1
Sullivan	236.5	6.5	4.4	.0	247.5	41.1	288.6
Tioga	472.8	.0	18.5	.0	491.3	232.7	724.0
Warren	430.2	5.0	11.8	.0	447.0	119.2	566.2
Allegheny Unit	3,100.2	11.6	164.3	1.5	3,277.6	679.4	3,957.0
Centre	505.0	.0	30.1	.0	535.1	172.8	707.9
Clarion	231.6	.0	4.9	.0	236.5	152.0	388.5
Clearfield	514.3	5.5	23.5	.0	543.3	192.0	735.3
Clinton	386.4	.0	108.0	.0	494.4	76.1	570.5
Jefferson	249.9	.0	7.6	t	257.5	162.6	420.2
Lycoming	531.2	.0	78.9	.0	610.1	181.7	791.8
Venango	299.1	4.8	7.6	.0	311.6	122.8	434.4
North-central Unit	2,717.6	10.3	260.6	t	2,988.5	1,060.0	4,048.5

Table 145.-continued

(In thousands of acres)

County and geographic unit	Land class						All classes
	Timberland	Other forest land	Reserved prod. forest land	Reserved other forest land	Total forest land	Nonforest land	
Dauphin	157.9	.0	10.8	1.4	170.1	167.7	337.8
Franklin	198.0	.0	15.6	.9	214.4	280.7	495.1
Fulton	190.3	.0	3.1	.0	193.4	86.6	280.0
Huntingdon	391.8	.0	28.4	.0	420.2	141.2	561.4
Juniata	158.8	.0	6.9	.0	165.7	84.9	250.6
Mifflin	165.0	.0	24.5	.0	189.5	74.6	264.1
Perry	211.5	.0	14.3	.8	226.6	129.6	356.2
Snyder	94.0	4.4	10.1	.0	108.5	102.2	210.7
Union	106.0	.0	30.4	.0	136.4	66.5	202.8
South-central Unit	1,673.4	4.4	144.0	3.1	1,824.8	1,134.0	2,958.8
Bradford	426.6	.0	6.3	.0	432.9	304.4	737.4
Lackawanna	196.3	.0	2.3	.0	198.6	96.5	295.1
Susquehanna	339.6	.0	.6	.0	340.2	188.4	528.6
Wayne	303.7	.0	3.0	.0	306.7	161.3	468.0
Wyoming	152.3	.0	5.3	.0	157.6	98.0	255.6
Northeastern Unit	1,418.5	.0	17.5	.0	1,436.1	848.6	2,284.7
Carbon	152.1	4.2	26.1	1.0	183.4	62.6	246.0
Columbia	164.2	.0	.1	.0	164.3	146.7	311.0
Luzerne	343.9	4.4	27.1	.0	375.3	194.9	570.2
Monroe	280.5	.0	13.0	1.6	295.1	94.8	390.0
Pike	258.5	4.3	25.6	.0	288.4	63.9	352.3
Schuylkill	331.0	5.6	14.5	.7	351.8	148.3	500.2
Montour/Northumberland	157.0	.0	11.6	.0	168.6	210.1	378.7
Pocono Unit	1,687.3	18.3	118.1	3.3	1,827.0	921.3	2,748.3
Adams	106.7	.0	3.0	.0	109.7	223.5	333.3
Berks	174.2	.0	16.8	1.3	192.3	358.6	550.9
Cumberland	118.9	.0	3.6	2.1	124.6	225.3	349.8
Philadelphia	.0	.0	.0	.0	.0	87.0	87.0
York	151.0	.0	4.5	.0	155.5	424.3	579.8
Bucks/Lehigh/Northampton	221.0	.0	25.6	1.3	248.0	605.8	853.8
Chester/Delaware/Montgomery	164.1	.0	38.1	.0	202.2	711.3	913.5
Lancaster/Lebanon	144.6	.0	12.6	.4	157.5	683.8	841.4
Southeastern Unit	1,080.5	.0	104.2	5.1	1,189.8	3,319.7	4,509.5
State total	15,872.8	77.3	1,023.3	19.3	16,992.8	11,735.6	28,728.3

[t] Less than 50 acres.

Table 146.--Area of timberland by county, geographic unit, and ownership class, Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Ownership class							All ownerships
	National Forest	Miscellaneous federal	State	County and municipal	Forest industry	Farmer	Other private	
Allegheny	-	.0	1.5	.0	.0	.0	126.4	127.9
Armstrong	-	.0	4.2	.0	.0	.0	210.1	214.3
Butler	-	.0	7.1	.0	.0	5.4	223.2	235.7
Crawford	-	1.1	8.1	.0	.0	46.9	245.7	301.8
Erie	-	.0	1.9	.0	.0	5.6	212.1	219.6
Greene	-	.0	10.8	.0	.0	11.3	183.2	205.3
Indiana	-	.0	11.5	.0	.0	64.4	236.7	312.6
Mercer	-	.0	2.4	.0	.0	17.5	132.2	152.1
Washington	-	.0	9.3	5.6	.0	11.2	241.3	267.4
Westmoreland	-	.0	24.3	5.3	.0	22.0	266.8	318.4
Beaver/Lawrence	-	.0	4.0	.0	.0	22.4	188.4	214.8
Western Unit	-	1.1	85.1	10.9	.0	206.6	2,266.0	2,569.7
Bedford	-	.0	66.7	.0	.0	99.0	269.7	435.4
Blair	-	.0	43.0	4.5	.0	.0	163.4	210.9
Cambria	-	.0	33.4	17.0	5.5	17.3	203.1	276.3
Fayette	-	.0	29.2	.0	12.0	11.1	229.5	281.8
Somerset	-	.0	54.7	17.1	5.2	53.8	290.4	421.2
Southwestern Unit	-	.0	227.0	38.5	22.6	181.2	1,156.3	1,625.6
Cameron	-	.0	88.1	.0	39.5	.0	53.7	181.3
Elk	104.3	.0	120.5	5.4	59.5	5.4	168.4	463.5
Forest	110.2	.0	9.9	.0	54.8	5.7	69.6	250.2
McKean	128.2	.0	24.4	5.6	151.2	.0	211.1	520.5
Potter	-	.0	236.8	.0	97.9	5.9	204.7	545.3
Sullivan	-	.0	90.0	.0	19.3	.0	127.2	236.5
Tioga	-	.8	161.2	16.0	21.6	71.7	201.5	472.8
Warren	122.4	.0	33.4	.0	28.2	5.4	240.8	430.2
Allegheny Unit	465.2	.8	764.3	27.0	472.0	94.0	1,276.9	3,100.2
Centre	-	.0	155.5	11.4	.0	17.2	320.9	505.0
Clarion	-	.0	18.9	.0	21.5	10.0	181.2	231.6
Clearfield	-	.0	104.1	.0	.0	5.3	404.9	514.3
Clinton	-	.0	189.9	11.4	.0	.0	185.1	386.4
Jefferson	-	.0	41.0	.0	10.9	10.3	187.7	249.9
Lycoming	-	.8	166.4	10.9	.0	5.5	347.6	531.2
Venango	-	.0	23.2	.0	16.0	30.8	229.1	299.1
North-central Unit	-	.8	698.9	33.6	48.4	79.1	1,856.8	2,717.6

Table 146.-continued

(In thousands of acres)

County and geographic unit	Ownership class							All ownerships
	National Forest	Miscellaneous federal	State	County and municipal	Forest industry	Farmer	Other private	
Dauphin	-	5.4	44.7	5.2	.0	5.5	97.1	157.9
Franklin	-	10.7	48.7	.0	5.6	.0	133.0	198.0
Fulton	-	.0	45.9	.0	5.1	5.8	133.5	190.3
Huntingdon	-	9.3	74.8	17.3	20.1	4.8	265.5	391.8
Juniata	-	.0	18.0	.0	.0	34.4	106.4	158.8
Mifflin	-	.0	39.5	.0	5.6	11.7	108.2	165.0
Perry	-	.0	45.7	.0	.0	33.2	132.6	211.5
Snyder	-	.0	18.0	.0	.0	16.3	59.7	94.0
Union	-	.8	41.7	.0	.0	.0	63.5	106.0
South-central Unit	-	26.3	377.0	22.5	36.4	111.8	1,099.4	1,673.4
Bradford	-	.0	54.3	.0	11.0	90.3	271.0	426.6
Lackawanna	-	.0	10.3	5.5	.0	5.5	175.0	196.3
Susquehanna	-	.0	12.9	.0	.0	50.8	275.9	339.6
Wayne	-	.0	13.4	5.4	.0	81.6	203.3	303.7
Wyoming	-	.0	27.1	.0	5.3	22.3	97.6	152.3
Northeastern Unit	-	.0	118.0	10.9	16.3	250.5	1,022.8	1,418.5
Carbon	-	.0	26.4	21.2	.0	.0	104.5	152.1
Columbia	-	.0	19.5	.0	5.5	17.8	121.4	164.2
Luzerne	-	.0	48.2	.0	.0	5.6	290.1	343.9
Monroe	-	.5	44.1	5.9	5.9	27.2	197.4	280.5
Pike	-	.0	67.5	.0	.0	.0	191.0	258.5
Schuylkill	-	.0	39.4	37.1	.0	16.7	237.8	331.0
Montour/Northumberland	-	.0	10.9	5.6	.0	23.1	117.4	157.0
Pocono Unit	-	.5	255.9	69.9	11.4	90.3	1,259.3	1,687.3
Adams	-	.0	18.6	.0	.0	15.3	72.8	106.7
Berks	-	.0	15.3	3.7	.0	.0	155.2	174.2
Cumberland	-	.0	36.4	5.2	.0	9.5	67.8	118.9
York	-	.0	2.3	.0	5.8	25.5	117.4	151.0
Bucks/Lehigh/Northampton	-	.0	13.3	.0	.0	12.7	195.0	221.0
Chester/Delaware/Montgomery	-	.0	1.7	10.5	.0	.0	151.9	164.1
Lancaster/Lebanon	-	8.4	28.2	.0	.0	63.3	44.7	144.6
Southeastern Unit	-	8.4	115.8	19.3	5.8	126.3	804.9	1,080.5
State total	465.2	38.0	2,641.9	232.6	612.9	1,139.7	10,742.5	15,872.8

Table 147.--Area of timberland by county, geographic unit, and forest-type group, Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Allegheny	.0	.0	.0	.0	49.1	.0	5.1	73.7	.0	127.9	12.7
Armstrong	.0	.0	.0	5.1	138.5	.0	5.1	54.9	10.7	214.3	6.4
Butler	10.4	.0	.0	.0	101.1	.0	20.1	92.3	11.8	235.7	7.6
Crawford	19.6	.0	.0	.0	42.1	.0	25.7	198.5	15.8	301.8	5.2
Erie	5.3	.0	.0	.0	31.8	.0	21.3	145.4	15.8	219.6	7.8
Greene	.0	5.5	.0	.0	155.4	.0	5.5	38.9	.0	205.3	5.8
Indiana	20.7	.0	.0	.0	135.3	.0	5.5	135.0	16.1	312.6	5.5
Mercer	.0	.0	.0	.0	46.4	.0	15.9	78.3	11.5	152.1	8.0
Washington	5.8	.0	.0	.0	100.1	.0	21.5	133.7	6.2	267.4	6.2
Westmoreland	5.5	.0	.0	5.5	165.3	.0	15.8	126.2	.0	318.4	5.6
Beaver/Lawrence	5.5	.0	.0	5.2	72.7	.0	16.3	115.0	.0	214.8	7.7
Western Unit	72.7	5.5	.0	15.8	1,038.0	.0	157.8	1,192.0	87.9	2,569.7	2.0
Bedford	.0	.0	26.0	21.3	284.2	.0	11.0	92.9	.0	435.4	2.8
Blair	5.2	.0	.0	8.9	143.3	.0	.0	53.4	.0	210.9	4.0
Cambria	28.2	.0	.0	.0	89.8	.0	6.3	147.2	4.8	276.3	4.4
Fayette	.0	.0	.0	.0	199.6	.0	21.7	60.5	.0	281.8	4.9
Somerset	10.5	11.6	.0	16.8	240.6	.0	.0	141.7	.0	421.2	4.0
Southwestern Unit	44.0	11.6	26.0	47.0	957.6	.0	39.0	495.7	4.8	1,625.6	1.8
Cameron	.0	.0	.0	.0	112.9	.0	5.8	62.6	.0	181.3	3.3
Elk	5.3	.0	.0	5.5	130.2	.0	21.8	281.8	18.8	463.5	1.8
Forest	17.0	.0	.0	3.3	64.5	.0	5.7	157.9	1.7	250.2	3.3
McKean	10.4	5.3	.0	.0	45.7	.0	47.6	390.2	21.3	520.5	2.3
Potter	5.1	.0	.0	.0	81.2	.0	17.4	418.2	23.3	545.3	1.7
Sullivan	22.8	.0	.0	5.5	11.7	.0	26.6	169.9	.0	236.5	3.1
Tioga	43.4	.0	.0	.0	139.9	.0	5.8	256.3	27.4	472.8	2.9
Warren	28.2	.0	.0	.0	92.3	.0	12.2	297.4	.0	430.2	2.6
Allegheny Unit	132.3	5.3	.0	14.3	678.5	.0	143.0	2,034.3	92.6	3,100.2	.9
Centre	27.9	.0	6.1	10.9	370.8	.0	17.3	72.0	.0	505.0	2.1
Clarion	37.5	5.6	.0	.0	104.8	.0	10.8	44.9	28.1	231.6	6.0
Clearfield	53.9	5.5	.0	.0	207.2	.0	15.9	209.5	22.3	514.3	3.5
Clinton	41.6	.0	16.4	17.9	270.1	.0	4.9	28.9	6.6	386.4	2.6
Jefferson	27.2	.0	.0	4.3	69.7	.0	11.0	125.2	12.5	249.9	4.7
Lycoming	54.9	5.0	5.0	10.6	197.3	.0	21.0	226.4	11.0	531.2	2.6
Venango	11.1	.0	.0	.0	173.2	.0	12.6	91.3	11.1	299.1	4.3
North-central Unit	254.0	16.1	27.5	43.7	1,393.0	.0	93.5	798.0	91.6	2,717.6	1.3

Table 147.-continued

(In thousands of acres)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Dauphin	.0	.0	.0	10.9	119.7	.0	.0	27.3	.0	157.9	6.7
Franklin	4.5	.0	.0	.0	142.0	.0	15.3	36.2	.0	198.0	5.7
Fulton	5.3	.0	5.8	16.3	147.4	.0	.0	15.5	.0	190.3	2.4
Huntingdon	29.2	.0	9.9	16.1	275.8	.0	.0	60.8	.0	391.8	2.6
Juniata	4.6	.0	.0	.0	119.1	.0	6.5	28.5	.0	158.8	2.7
Mifflin	9.8	.0	.0	.0	123.1	.0	.0	32.1	.0	165.0	4.7
Perry	.0	3.5	.0	12.7	145.6	.0	6.9	42.8	.0	211.5	4.4
Snyder	9.8	.0	5.4	10.9	51.2	.0	.0	16.6	.0	94.0	6.2
Union	4.5	.0	.0	5.5	56.2	.0	7.9	31.9	.0	106.0	4.7
South-central Unit	67.8	3.5	21.1	72.4	1,180.1	.0	36.6	291.8	.0	1,673.4	1.5
Bradford	29.4	.0	.0	11.3	125.1	.0	10.9	244.8	5.1	426.6	4.4
Lackawanna	17.0	.0	.0	.0	83.1	.0	11.1	74.2	10.9	196.3	5.9
Susquehanna	36.3	.0	.0	5.7	28.5	.0	15.4	242.4	11.3	339.6	5.3
Wayne	20.3	.0	.0	.0	43.9	.0	16.4	217.5	5.6	303.7	3.6
Wyoming	5.3	.0	.0	5.3	46.5	.0	6.9	76.0	12.3	152.3	7.6
Northeastern Unit	108.3	.0	.0	22.3	327.2	.0	60.7	854.9	45.1	1,418.5	2.3
Carbon	5.0	.0	10.9	15.6	94.6	.0	5.0	21.2	.0	152.1	6.8
Columbia	5.1	.0	5.5	.0	123.2	.0	.0	30.5	.0	164.2	5.9
Luzerne	26.5	.0	.0	21.2	197.2	.0	16.9	65.5	16.6	343.9	4.9
Monroe	16.4	6.4	.0	11.4	159.2	.0	18.6	68.5	.0	280.5	3.5
Pike	26.9	5.2	.0	22.2	179.3	.0	8.6	16.4	.0	258.5	4.9
Schuylkill	22.5	.0	.0	22.0	226.3	.0	.0	43.9	16.3	331.0	3.3
Montour/Northumberland	5.4	.0	11.0	16.9	101.0	.0	5.6	16.9	.0	157.0	7.1
Pocono Unit	107.8	11.6	27.4	109.4	1,080.8	.0	54.6	262.8	32.8	1,687.3	1.9
Adams	.0	.0	5.6	5.4	81.7	.0	9.7	4.3	.0	106.7	8.5
Berks	.0	5.5	.0	3.7	127.7	.0	20.7	16.7	.0	174.2	7.8
Cumberland	5.1	.0	20.6	.0	82.9	.0	5.2	5.1	.0	118.9	9.3
York	.0	5.8	4.1	.0	130.5	.0	.0	10.6	.0	151.0	6.5
Bucks/Lehigh/Northampton	5.8	.0	.0	.0	139.0	.0	39.0	37.3	.0	221.0	8.5
Chester/Delaware/Montgomery	.0	.0	5.9	.0	130.5	.0	.0	27.6	.0	164.1	9.8
Lancaster/Lebanon	.0	.0	.0	5.3	111.6	.0	10.5	17.3	.0	144.6	10.8
Southeastern Unit	10.9	11.2	36.2	14.4	803.9	.0	85.1	118.9	.0	1,080.5	3.4
State total	797.8	64.7	138.2	339.3	7,459.0	.0	670.4	6,048.5	354.8	15,872.8	.6
SE	7.9	28.4	18.8	12.4	1.8	.0	8.8	2.2	12.3	.6	

Table 148.--Area of timberland by county, geographic unit, and stand-size class, Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Stand-size class				All classes
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Allegheny	84.0	22.2	21.7	.0	127.9
Armstrong	123.8	27.8	62.7	.0	214.3
Butler	117.2	70.4	48.1	.0	235.7
Crawford	168.6	101.0	26.6	5.5	301.8
Erie	124.5	31.1	64.0	.0	219.6
Greene	106.3	71.2	27.8	.0	205.3
Indiana	145.9	102.5	64.2	.0	312.6
Mercer	90.0	39.8	22.2	.0	152.1
Washington	110.8	72.0	84.6	.0	267.4
Westmoreland	167.5	62.7	88.1	.0	318.4
Beaver/Lawrence	112.4	65.2	37.1	.0	214.8
Western Unit	1,351.0	665.9	547.3	5.5	2,569.7
Bedford	190.1	135.7	109.6	.0	435.4
Blair	100.8	72.6	32.1	5.5	210.9
Cambria	168.9	74.5	32.9	.0	276.3
Fayette	161.4	73.0	47.4	.0	281.8
Somerset	162.9	152.6	100.4	5.3	421.2
Southwestern Unit	784.1	508.3	322.4	10.8	1,625.6
Cameron	113.1	54.8	13.4	.0	181.3
Elk	335.0	87.5	41.0	.0	463.5
Forest	191.0	27.2	32.1	.0	250.2
McKean	307.0	151.7	57.4	4.4	520.5
Potter	369.3	129.0	47.0	.0	545.3
Sullivan	135.7	89.2	11.6	.0	236.5
Tioga	206.4	195.0	65.9	5.5	472.8
Warren	320.3	69.9	40.0	.0	430.2
Allegheny Unit	1,977.6	804.3	308.4	9.9	3,100.2
Centre	244.0	194.5	66.4	.0	505.0
Clarion	118.8	54.7	58.2	.0	231.6
Clearfield	226.3	194.9	93.0	.0	514.3
Clinton	189.2	176.1	21.1	.0	386.4
Jefferson	189.5	47.2	13.2	.0	249.9
Lycoming	278.5	198.6	54.1	.0	531.2
Venango	210.8	71.3	17.1	.0	299.1
North-central Unit	1,457.1	937.4	323.1	.0	2,717.6

Table 148.-continued

(In thousands of acres)

County and geographic unit	Stand-size class				All classes
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Dauphin	70.7	54.5	32.7	.0	157.9
Franklin	123.6	25.3	49.1	.0	198.0
Fulton	109.9	58.4	22.1	.0	190.3
Huntingdon	197.8	134.3	59.7	.0	391.8
Juniata	96.0	51.2	11.7	.0	158.8
Mifflin	107.1	35.7	22.5	.0	165.2
Perry	146.3	58.6	6.5	.0	211.5
Snyder	33.6	48.9	11.5	.0	94.0
Union	51.6	50.6	3.8	.0	106.0
South-central Unit	936.6	517.5	219.5	.0	1,673.6
Bradford	173.1	172.1	81.5	.0	426.8
Lackawanna	91.0	67.2	38.1	.0	196.3
Susquehanna	180.9	86.0	72.7	.0	339.6
Wayne	171.0	98.5	34.1	.0	303.7
Wyoming	69.9	52.4	30.0	.0	152.3
Northeastern Unit	686.0	476.3	256.4	.0	1,418.7
Carbon	36.0	72.8	43.3	.0	152.1
Columbia	80.6	65.1	18.5	.0	164.2
Luzerne	131.0	175.0	37.9	.0	343.9
Monroe	142.2	114.2	24.1	.0	280.5
Pike	136.7	95.2	26.6	.0	258.5
Schuylkill	72.3	188.8	69.9	.0	331.0
Montour/Northumberland	72.6	49.9	34.4	.0	157.0
Pocono Unit	671.5	761.0	254.8	.0	1,687.3
Adams	59.9	26.1	20.8	.0	106.7
Berks	94.4	54.6	25.3	.0	174.2
Cumberland	52.4	55.8	10.6	.0	118.9
York	110.4	35.1	5.5	.0	151.0
Bucks/Lehigh/Northampton	118.2	57.8	44.9	.0	221.0
Chester/Delaware/Montgomery	101.7	28.5	33.9	.0	164.1
Lancaster/Lebanon	109.1	23.8	11.7	.0	144.6
Southeastern Unit	646.2	281.6	152.7	.0	1,080.5
State total	8,510.0	4,952.3	2,384.6	26.2	15,873.1

Table 149.--Area of timberland by county, geographic unit, and stand-size class (based on growing-stock trees), Pennsylvania, 1978

(In thousands of acres)

County and geographic unit	Stand-size class			All classes
	Saw-timber	Pole-timber	Other stands	
Allegheny	53.2	.0	76.2	129.4
Armstrong	78.5	58.3	83.0	219.8
Butler	108.2	64.3	71.0	243.5
Crawford	120.9	67.8	133.6	322.3
Erie	86.7	37.3	88.1	212.1
Indiana	156.2	72.4	71.4	300.0
Westmoreland	163.3	94.0	41.4	298.7
Beaver/Lawrence/Mercer	152.1	90.3	142.4	384.8
Greene/Washington	121.9	162.9	138.9	423.7
Western Unit	1,041.0	647.3	846.0	2,534.3
Bedford	190.7	134.6	96.4	421.7
Blair	107.8	80.1	21.7	209.6
Cambria	179.2	21.6	54.6	255.4
Fayette	128.6	112.2	63.4	304.2
Somerset	147.6	145.4	113.2	406.2
Southwestern Unit	753.9	493.9	349.3	1,597.1
Elk	229.4	170.9	62.0	462.3
Forest	150.4	90.4	6.6	247.4
McKean	327.0	180.5	44.0	551.5
Sullivan	164.7	62.0	24.7	251.4
Tioga	222.0	195.8	55.8	473.6
Warren	274.2	132.3	53.4	459.9
Cameron/Potter	417.4	382.3	36.4	836.1
Allegheny Unit	1,785.1	1,214.2	282.9	3,282.2
Centre	283.5	151.5	68.5	503.5
Clarion	100.0	43.8	73.5	217.3
Clearfield	205.1	175.4	188.6	569.1
Clinton	214.0	182.8	32.2	429.0
Jefferson	204.0	36.1	33.7	273.8
Lycoming	362.0	141.5	50.5	554.0
Venango	165.2	79.9	68.0	313.1
North-central Unit	1,533.8	811.0	515.0	2,859.8

Table 149.-continued

(In thousands of acres)

County and geographic unit	Stand-size class			All classes
	Saw-timber	Pole-timber	Other stands	
Dauphin	39.8	66.0	44.0	149.8
Franklin	117.2	50.0	32.4	199.6
Fulton	103.0	14.7	60.9	178.6
Huntingdon	167.4	124.6	93.0	385.0
Perry	145.9	47.7	17.1	210.7
Juniata/Mifflin	156.2	141.1	19.2	316.5
Snyder/Union	83.3	60.8	57.7	201.8
South-central Unit	812.8	504.9	324.3	1,642.0
Bradford	111.9	155.4	113.5	380.8
Lackawanna	60.8	42.4	84.7	187.9
Susquehanna	87.8	135.8	96.4	320.0
Wayne	150.1	129.4	27.7	307.2
Wyoming	60.6	87.8	13.0	161.4
Northeastern Unit	471.2	550.8	335.3	1,357.3
Carbon	26.4	66.4	68.1	160.9
Luzerne	95.2	128.1	140.2	363.5
Monroe	121.8	95.3	66.7	283.8
Pike	156.1	98.3	18.6	273.0
Schuylkill	23.7	153.3	122.5	299.5
Columbia/Montour/Northumberland	114.0	107.0	55.0	276.0
Pocono Unit	537.2	648.4	471.1	1,656.7
Berks	109.0	21.6	21.0	151.6
Adams/Cumberland/York	276.6	55.6	22.6	354.8
Bucks/Lehigh/Northampton	103.5	21.4	63.6	188.5
Chester/Delaware/Montgomery	97.2	17.8	38.1	153.1
Lancaster/Lebanon	104.2	21.2	20.9	146.3
Southeastern Unit	690.5	137.6	166.2	994.3
State total	7,625.5	5,008.1	3,290.1	15,923.7

Table 150.--Area of timberland by county, geographic unit, and stand-size class (based on growing-stock trees), Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Stand-size class				All classes
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Allegheny	72.3	33.9	21.7	.0	127.9
Armstrong	113.2	38.8	62.4	.0	214.3
Butler	122.7	70.2	42.7	.0	235.7
Crawford	162.7	106.9	26.6	5.5	301.8
Erie	124.5	25.7	64.2	5.1	219.6
Greene	111.7	71.1	22.6	.0	205.3
Indiana	141.4	101.8	69.3	.0	312.6
Mercer	78.4	51.4	22.2	.0	152.1
Washington	116.3	66.5	84.6	.0	267.4
Westmoreland	167.5	73.0	72.5	5.3	318.4
Beaver/Lawrence	107.5	59.6	42.4	5.4	214.8
Western Unit	1,318.3	698.9	531.2	21.3	2,569.7
Bedford	179.3	140.9	109.8	5.3	435.4
Blair	111.5	61.6	32.4	5.5	210.9
Cambria	174.4	80.5	21.4	.0	276.3
Fayette	173.1	71.7	37.0	.0	281.8
Somerset	173.5	136.8	89.2	21.7	421.2
Southwestern Unit	811.8	491.5	289.8	32.5	1,625.6
Cameron	113.1	62.4	.0	5.8	181.3
Elk	345.6	81.9	36.0	.0	463.5
Forest	185.3	32.9	32.1	.0	250.2
McKean	301.7	168.7	40.4	9.7	520.5
Potter	358.6	144.7	42.0	.0	545.3
Sullivan	124.1	100.8	11.6	.0	236.5
Tioga	217.9	183.7	60.2	11.0	472.8
Warren	320.3	75.3	34.6	.0	430.2
Allegheny Unit	1,966.5	850.4	256.9	26.5	3,100.2
Centre	238.3	205.7	60.9	.0	505.0
Clarion	129.8	49.2	52.7	.0	231.6
Clearfield	226.3	195.0	92.9	.0	514.3
Clinton	184.3	181.1	21.1	.0	386.4
Jefferson	183.5	47.2	19.1	.0	249.9
Lycoming	284.3	192.8	54.1	.0	531.2
Venango	205.4	76.7	17.1	.0	299.1
North-central Unit	1,451.9	947.7	317.9	.0	2,717.6

Table 150.-continued

(In thousands of acres)

County and geographic unit	Stand-size class				All classes
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked	
Dauphin	76.8	54.3	26.7	.0	157.9
Franklin	123.6	25.3	49.1	.0	198.0
Fulton	115.7	47.4	27.2	.0	190.3
Huntingdon	175.9	157.5	58.4	.0	391.8
Juniata	99.6	47.6	11.7	.0	158.8
Mifflin	89.7	53.0	22.5	.0	165.2
Perry	140.2	57.9	6.5	6.8	211.5
Snyder	33.6	48.9	11.5	.0	94.0
Union	47.1	55.1	3.8	.0	106.0
South-central Unit	902.3	547.0	217.4	6.8	1,673.6
Bradford	173.0	167.0	86.8	.0	426.8
Lackawanna	91.0	78.3	27.0	.0	196.3
Susquehanna	165.3	103.8	70.5	.0	339.6
Wayne	181.6	87.9	34.1	.0	303.7
Wyoming	69.9	52.4	23.9	6.2	152.3
Northeastern Unit	680.8	489.4	242.2	6.2	1,418.7
Carbon	40.9	73.5	37.7	.0	152.1
Columbia	86.2	59.5	18.5	.0	164.2
Luzerne	114.5	202.8	26.6	.0	343.9
Monroe	142.5	120.3	17.7	.0	280.5
Pike	131.3	111.4	15.8	.0	258.5
Schuylkill	77.1	184.0	69.9	.0	331.0
Montour/Northumberland	61.6	60.9	34.4	.0	157.0
Pocono Unit	654.2	812.5	220.6	.0	1,687.3
Adams	59.9	21.8	25.0	.0	106.7
Berks	94.4	54.6	25.3	.0	174.2
Cumberland	47.3	55.8	10.6	5.1	118.9
York	99.6	45.9	5.5	.0	151.0
Bucks/Lehigh/Northampton	112.6	58.1	50.3	.0	221.0
Chester/Delaware/Montgomery	108.0	22.2	33.9	.0	164.1
Lancaster/Lebanon	109.1	23.8	11.7	.0	144.6
Southeastern Unit	631.0	282.1	162.3	5.1	1,080.5
State total	8,416.9	5,119.6	2,238.3	98.4	15,873.1

Table 151.--Area of timberland by county, geographic unit, and stocking class of growing-stock trees, Pennsylvania, 1989

(In thousands of acres)

County and geographic unit	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Allegheny	.0	17.5	44.0	44.5	22.0	127.9
Armstrong	.0	26.2	75.4	67.3	45.5	214.3
Butler	.0	32.8	64.7	101.8	36.4	235.7
Crawford	5.5	37.6	74.2	138.9	45.6	301.8
Erie	5.1	27.2	47.6	86.7	52.9	219.6
Greene	.0	16.1	67.3	89.4	32.5	205.3
Indiana	.0	52.5	90.1	137.5	32.5	312.6
Mercer	.0	17.3	38.4	67.7	28.7	152.1
Washington	.0	44.2	100.3	89.0	34.0	267.4
Westmoreland	5.3	37.2	75.6	103.0	97.2	318.4
Beaver/Lawrence	5.4	32.9	67.3	76.0	33.1	214.8
Western Unit	21.3	341.6	744.8	1,001.7	460.4	2,569.7
Bedford	5.3	38.4	160.9	143.1	87.7	435.4
Blair	5.5	21.7	63.1	63.8	56.9	210.9
Cambria	.0	27.0	74.6	100.7	74.1	276.3
Fayette	.0	5.2	76.3	119.2	81.1	281.8
Somerset	21.7	54.0	92.0	141.7	111.8	421.2
Southwestern Unit	32.5	146.2	466.9	568.5	411.5	1,625.6
Cameron	5.8	10.9	48.9	72.4	43.4	181.3
Elk	.0	10.3	126.4	149.4	177.3	463.5
Forest	.0	5.2	47.8	94.6	102.6	250.2
McKean	9.7	21.6	127.4	172.1	189.7	520.5
Potter	.0	10.1	88.5	211.2	235.6	545.3
Sullivan	.0	29.1	32.8	74.5	100.1	236.5
Tioga	11.0	38.4	105.2	110.9	207.3	472.8
Warren	.0	38.1	87.9	150.5	153.7	430.2
Allegheny Unit	26.5	163.6	664.7	1,035.7	1,209.7	3,100.2
Centre	.0	54.6	158.9	183.7	107.9	505.0
Clarion	.0	14.2	63.0	98.3	56.1	231.6
Clearfield	.0	32.5	178.5	204.9	98.4	514.3
Clinton	.0	26.2	77.6	136.7	145.9	386.4
Jefferson	.0	24.6	64.4	80.2	80.7	249.9
Lycoming	.0	21.9	126.7	201.4	181.2	531.2
Venango	.0	25.7	98.2	102.3	73.0	299.1
North-central Unit	.0	199.7	767.2	1,007.4	743.3	2,717.6

Table 151.-continued

(In thousands of acres)

County and geographic unit	Stocking class					All classes
	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked	
Dauphin	.0	22.4	38.0	48.8	48.7	157.9
Franklin	.0	9.0	36.1	99.0	53.9	198.0
Fulton	.0	.0	66.2	79.6	44.6	190.3
Huntingdon	.0	28.7	148.0	134.6	80.5	391.8
Juniata	.0	13.6	86.6	30.4	28.3	158.8
Mifflin	.0	5.2	55.8	81.5	22.7	165.2
Perry	6.8	11.7	40.6	108.5	43.7	211.5
Snyder	.0	11.2	21.4	50.3	11.2	94.0
Union	.0	3.8	41.8	28.8	31.6	106.0
South-central Unit	6.8	105.7	534.5	661.4	365.2	1,673.6
Bradford	.0	48.3	101.3	136.8	140.3	426.8
Lackawanna	.0	22.2	66.5	62.0	45.6	196.3
Susquehanna	.0	51.4	84.3	114.1	89.7	339.6
Wayne	.0	11.4	132.1	96.4	63.8	303.7
Wyoming	6.2	5.3	32.9	41.7	66.3	152.3
Northeastern Unit	6.2	138.6	417.2	451.1	405.6	1,418.7
Carbon	.0	20.5	62.4	37.4	31.8	152.1
Columbia	.0	11.9	52.1	67.7	32.5	164.2
Luzerne	.0	49.3	83.4	123.9	87.4	343.9
Monroe	.0	12.1	81.5	135.4	51.5	280.5
Pike	.0	42.9	107.7	66.6	41.4	258.5
Schuylkill	.0	26.5	98.9	134.2	71.4	331.0
Montour/Northumberland	.0	22.5	33.4	67.2	33.8	157.0
Pocono Unit	.0	185.8	519.5	632.2	349.8	1,687.3
Adams	.0	9.8	36.9	32.7	27.3	106.7
Berks	.0	6.3	51.8	61.8	54.4	174.2
Cumberland	5.1	10.2	46.7	31.2	25.7	118.9
York	.0	5.5	57.8	50.5	37.2	151.0
Bucks/Lehigh/Northampton	.0	16.5	60.2	79.5	64.9	221.0
Chester/Delaware/Montgomery	.0	17.1	39.9	66.8	40.3	164.1
Lancaster/Lebanon	.0	.0	48.3	54.3	42.0	144.6
Southeastern Unit	5.1	65.4	341.6	376.8	291.6	1,080.5
State total	98.4	1,346.5	4,456.3	5,734.7	4,237.2	15,873.1

Table 152.--Area of timberland by county, geographic unit, and site productivity class, Pennsylvania, 1989

(In thousands of acrès)

County and geographic unit	Productivity class(cuft/a/yr)				All classes
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)	
Allegheny	22.3	10.9	38.8	55.9	127.9
Armstrong	11.3	38.9	61.7	102.4	214.3
Butler	17.5	31.1	63.1	123.9	235.7
Crawford	24.8	57.0	73.0	147.0	301.8
Erie	16.4	20.9	26.0	156.3	219.6
Greene	22.5	49.2	65.5	68.1	205.3
Indiana	21.3	91.0	75.4	124.8	312.6
Mercer	28.3	51.2	28.0	44.6	152.1
Washington	44.5	55.6	48.2	118.9	267.4
Westmoreland	23.6	22.0	71.4	201.4	318.4
Beaver/Lawrence	11.1	26.3	67.0	110.4	214.8
Western Unit	243.8	454.2	618.0	1,253.7	2,569.7
Bedford	5.6	27.4	146.9	255.5	435.4
Blair	.0	26.2	48.1	136.6	210.9
Cambria	35.2	10.7	77.4	153.0	276.3
Fayette	37.1	56.3	62.8	125.6	281.8
Somerset	27.4	53.9	126.6	213.3	421.2
Southwestern Unit	105.2	174.5	461.9	884.0	1,625.6
Cameron	.0	.0	24.1	157.2	181.3
Elk	10.9	40.3	91.5	320.8	463.5
Forest	5.7	20.7	80.2	143.6	250.2
McKean	6.6	11.4	160.5	342.0	520.5
Potter	12.9	21.0	109.0	402.4	545.3
Sullivan	.0	.0	43.9	192.6	236.5
Tioga	11.3	16.6	105.3	339.6	472.8
Warren	6.1	.0	121.7	302.3	430.2
Allegheny Unit	53.5	109.9	736.2	2,200.5	3,100.2
Centre	6.1	17.1	100.7	381.2	505.0
Clarion	5.9	54.4	70.8	100.6	231.6
Clearfield	21.9	60.3	157.5	274.5	514.3
Clinton	4.9	22.5	54.7	304.2	386.4
Jefferson	.0	32.4	107.6	109.9	249.9
Lycoming	15.9	38.3	125.4	351.5	531.2
Venango	10.5	56.1	120.2	112.3	299.1
North-central Unit	65.3	281.1	737.0	1,634.1	2,717.6

Table 152.-continued

(In thousands of acres)

County and geographic unit	Productivity class(cuft/a/yr)				All classes
	Very good (120+)	Good (85-119)	Fair (50-84)	Poor (20-49)	
Dauphin	27.9	11.1	10.9	108.1	157.9
Franklin	.0	.0	27.4	170.6	198.0
Fulton	.0	32.9	54.4	103.0	190.3
Huntingdon	35.1	.0	113.8	242.9	391.8
Juniata	.0	7.8	39.8	111.2	158.8
Mifflin	.0	15.7	21.0	128.6	165.2
Perry	10.3	11.1	83.7	106.3	211.5
Snyder	.0	10.9	11.2	71.9	94.0
Union	.0	14.6	14.6	76.9	106.0
South-central Unit	73.2	104.0	376.8	1,119.5	1,673.6
Bradford	16.9	55.0	123.1	231.8	426.8
Lackawanna	12.0	22.0	22.6	139.7	196.3
Susquehanna	33.6	20.7	87.0	198.3	339.6
Wayne	4.9	27.7	84.8	186.2	303.7
Wyoming	.0	10.6	18.9	122.8	152.3
Northeastern Unit	67.3	136.1	336.4	878.9	1,418.7
Carbon	.0	.0	9.8	142.3	152.1
Columbia	6.6	.0	39.1	118.6	164.2
Luzerne	11.3	16.4	69.2	246.9	343.9
Monroe	.0	16.4	42.0	222.1	280.5
Pike	.0	.0	22.0	236.5	258.5
Schuylkill	11.3	21.8	72.2	225.7	331.0
Montour/Northumberland	22.1	16.5	33.7	84.7	157.0
Pocono Unit	51.2	71.2	288.2	1,276.7	1,687.3
Adams	.0	5.5	10.9	90.4	106.7
Berks	21.6	30.1	35.8	86.8	174.2
Cumberland	.0	5.0	31.7	82.1	118.9
York	11.2	9.9	66.2	63.6	151.0
Bucks/Lehigh/Northampton	13.6	23.8	67.0	116.6	221.0
Chester/Delaware/Montgomery	5.2	35.0	44.4	79.5	164.1
Lancaster/Lebanon	5.3	30.8	34.5	74.1	144.6
Southeastern Unit	56.9	140.1	290.4	593.2	1,080.5
State total	716.4	1,471.0	3,844.9	9,840.7	15,873.1

Table 153.--Net volume of growing-stock trees on timberland by county, geographic unit, and forest-type group, Pennsylvania, 1989

(In millions of cubic feet)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Allegheny	.0	.0	.0	.0	53.3	.0	4.2	116.2	.0	173.7	17.4
Armstrong	.0	.0	.0	5.5	188.5	.0	11.7	78.7	12.4	296.8	10.2
Butler	11.8	.0	.0	.0	152.6	.0	28.2	74.2	19.4	286.3	10.4
Crawford	83.5	.0	.0	.0	53.8	.0	28.9	320.2	16.0	502.4	8.6
Erie	11.9	.0	.0	.0	45.6	.0	24.3	290.2	4.1	376.2	11.0
Greene	.0	9.7	.0	.0	220.0	.0	4.1	50.6	.0	284.3	8.8
Indiana	10.1	.0	.0	.0	191.2	.0	1.7	178.8	14.5	396.3	8.3
Mercer	.0	.0	.0	.0	76.9	.0	10.3	126.1	8.5	221.8	12.9
Washington	17.4	.0	.0	.0	124.0	.0	15.7	113.9	.4	271.4	11.1
Westmoreland	9.6	.0	.0	1.3	248.3	.0	7.9	203.7	.0	470.8	8.7
Beaver/Lawrence	.4	.0	.0	6.2	108.8	.0	24.9	124.5	.0	264.7	10.7
Western Unit	144.8	9.7	.0	12.9	1,463.1	.0	161.9	1,677.1	75.2	3,544.6	3.1
Bedford	.0	.0	33.6	19.2	267.1	.0	14.1	119.4	.0	453.3	6.4
Blair	6.9	.0	.0	9.7	160.3	.0	.0	75.4	.0	252.2	9.2
Cambria	47.2	.0	.0	.0	125.0	.0	10.7	218.1	.1	401.1	6.4
Fayette	.0	.0	.0	.0	371.4	.0	22.6	68.4	.0	462.4	7.5
Somerset	9.3	2.9	.0	31.5	290.0	.0	.0	183.5	.0	517.3	7.7
Southwestern Unit	63.4	2.9	33.6	60.5	1,213.7	.0	47.4	664.7	.1	2,086.3	3.3
Cameron	.0	.0	.0	.0	217.6	.0	6.6	145.5	.0	369.6	6.9
Elk	20.4	.0	.0	7.8	257.6	.0	49.5	612.2	9.3	956.8	4.1
Forest	15.3	.0	.0	11.5	126.1	.0	18.5	368.9	4.6	544.8	8.1
McKean	19.2	4.3	.0	.0	82.6	.0	139.5	870.0	8.3	1,123.9	5.0
Potter	3.7	.0	.0	.0	210.9	.0	31.5	917.1	46.4	1,209.6	3.6
Sullivan	30.8	.0	.0	5.3	16.4	.0	47.0	338.1	.0	437.6	6.6
Tioga	55.1	.0	.0	.0	293.9	.0	6.3	496.0	43.9	895.2	5.1
Warren	56.6	.0	.0	.0	173.8	.0	25.2	623.9	.0	879.4	5.7
Allegheny Unit	201.1	4.3	.0	24.6	1,378.8	.0	324.2	4,371.7	112.4	6,417.1	1.9
Centre	35.0	.0	11.3	2.7	491.0	.0	21.1	78.9	.0	640.1	5.0
Clarion	80.3	5.3	.0	.0	163.0	.0	3.3	58.1	22.7	332.7	9.4
Clearfield	95.9	3.9	.0	.0	260.8	.0	23.8	335.6	16.7	736.7	6.7
Clinton	108.3	.0	23.0	41.0	381.8	.0	2.3	45.7	13.0	615.1	5.5
Jefferson	69.3	.0	.0	8.5	154.2	.0	6.9	235.1	10.7	484.6	7.0
Lycoming	102.1	1.0	1.8	14.7	272.1	.0	31.6	473.4	21.4	918.1	5.4
Venango	15.2	.0	.0	.0	278.9	.0	12.3	155.4	14.1	476.0	6.9
North-central Unit	506.1	10.3	36.1	66.9	2,001.9	.0	101.3	1,382.1	98.6	4,203.3	2.4

Table 153.-continued

(In millions of cubic feet)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Dauphin	.0	.0	.0	8.1	168.3	.0	.0	17.0	.0	193.4	12.6
Franklin	2.0	.0	.0	.0	212.2	.0	8.5	28.1	.0	250.8	11.2
Fulton	.5	.0	3.6	32.6	199.0	.0	.0	19.8	.0	255.6	9.3
Huntingdon	41.1	.0	3.0	35.0	347.0	.0	.0	80.4	.0	506.5	7.7
Juniata	5.6	.0	.0	.0	164.5	.0	3.0	32.9	.0	206.0	10.5
Mifflin	18.3	.0	.0	.0	188.5	.0	.0	43.5	.0	250.3	11.4
Perry	.0	9.9	.0	16.2	222.0	.0	7.3	43.0	.0	298.3	8.3
Snyder	11.0	.0	7.2	20.4	71.7	.0	.0	12.7	.0	122.9	14.6
Union	7.9	.0	.0	10.6	97.0	.0	6.2	58.7	.0	180.3	7.2
South-central Unit	86.3	9.9	13.8	122.9	1,670.1	.0	25.0	336.1	.0	2,264.1	3.4
Bradford	47.1	.0	.0	19.1	165.0	.0	14.0	388.9	2.1	636.3	6.8
Lackawanna	49.7	.0	.0	.0	83.6	.0	12.5	127.7	6.0	279.5	10.2
Susquehanna	71.9	.0	.0	18.5	41.8	.0	8.4	318.7	33.9	493.1	7.1
Wayne	54.3	.0	.0	.0	60.7	.0	19.7	388.5	8.3	531.5	7.0
Wyoming	3.6	.0	.0	3.3	88.6	.0	13.8	148.6	17.6	275.5	14.0
Northeastern Unit	226.7	.0	.0	40.9	439.8	.0	68.3	1,372.4	67.9	2,215.9	3.7
Carbon	13.5	.0	6.1	13.8	83.6	.0	10.4	16.7	.0	144.1	12.5
Columbia	5.4	.0	13.3	.0	171.7	.0	.0	39.5	.0	230.0	9.3
Luzerne	53.9	.0	.0	33.1	264.2	.0	18.3	105.5	7.7	482.6	8.4
Monroe	26.9	3.6	.0	19.9	224.3	.0	29.8	153.7	.0	458.3	8.9
Pike	56.3	.5	.0	19.5	242.2	.0	11.8	43.8	.0	374.1	9.7
Schuylkill	46.3	.0	.0	25.6	247.4	.0	.0	51.4	2.0	372.7	6.9
Montour/Northumberland	10.4	.0	25.3	17.4	136.5	.0	1.9	4.5	.0	196.0	11.0
Pocono Unit	212.8	4.1	44.7	129.3	1,370.0	.0	72.2	415.2	9.6	2,257.9	3.6
Adams	.0	.0	.0	8.0	142.7	.0	7.2	.0	.0	157.9	15.4
Berks	.0	2.1	.0	8.5	208.8	.0	19.5	35.4	.0	274.3	10.8
Cumberland	6.5	.0	27.8	.0	107.0	.0	.4	.0	.0	141.7	11.7
York	.0	11.5	6.1	.0	232.8	.0	.0	13.1	.0	263.4	9.3
Bucks/Lehigh/Northampton	17.2	.0	.0	.0	248.7	.0	49.0	40.5	.0	355.3	9.8
Chester/Delaware/Montgomery	.0	.0	.0	.0	302.6	.0	.0	20.8	.0	323.4	13.2
Lancaster/Lebanon	.0	.0	.0	1.6	239.9	.0	11.4	26.5	.0	279.4	13.5
Southeastern Unit	23.8	13.6	33.9	18.1	1,482.5	.0	87.4	136.1	.0	1,795.3	4.6
State total	1,464.8	54.8	162.1	476.0	11,019.9	.0	887.7	10,355.5	363.8	24,784.5	1.1
SE	9.1	36.9	22.6	15.1	2.3	.0	10.7	2.6	17.6	1.1	

Table 154.--Net volume of growing-stock trees on timberland by county, geographic unit, and stand-size class, Pennsylvania, 1989

(In millions of cubic feet)

County and geographic unit	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Allegheny	149.3	19.7	4.7	.0	173.7	17.4
Armstrong	229.4	44.3	23.1	.0	296.8	10.2
Butler	193.7	83.8	8.7	.0	286.3	10.4
Crawford	376.4	120.0	5.8	.2	502.4	8.6
Erie	321.6	40.2	14.4	.0	376.2	11.0
Greene	195.5	74.1	14.7	.0	284.3	8.8
Indiana	282.9	93.9	19.4	.0	396.3	8.3
Mercer	178.7	36.0	7.2	.0	221.8	12.9
Washington	178.0	77.5	15.9	.0	271.4	11.1
Westmoreland	367.3	79.8	23.7	.0	470.8	8.7
Beaver/Lawrence	169.2	66.2	29.3	.0	264.7	10.7
Western Unit	2,642.0	735.4	167.0	.2	3,544.6	3.1
Bedford	256.9	152.8	43.6	.0	453.3	6.4
Blair	159.3	75.4	17.5	.0	252.2	9.2
Cambria	309.0	82.3	9.8	.0	401.1	6.4
Fayette	322.9	118.8	20.7	.0	462.4	7.5
Somerset	326.9	174.1	16.4	.0	517.3	7.7
Southwestern Unit	1,375.0	603.4	108.0	.0	2,086.3	3.3
Cameron	275.0	86.8	7.8	.0	369.6	6.9
Elk	813.9	134.3	8.5	.0	956.8	4.1
Forest	483.7	49.2	11.9	.0	544.8	8.1
McKean	805.6	279.4	38.4	.6	1,123.9	5.0
Potter	938.7	250.0	20.9	.0	1,209.6	3.6
Sullivan	316.1	118.5	3.1	.0	437.6	6.6
Tioga	560.2	321.9	12.8	.4	895.2	5.1
Warren	753.4	102.4	23.7	.0	879.4	5.7
Allegheny Unit	4,946.5	1,342.5	127.0	1.0	6,417.1	1.9
Centre	397.8	223.3	19.1	.0	640.1	5.0
Clarion	235.4	77.8	19.5	.0	332.7	9.4
Clearfield	490.8	221.5	24.4	.0	736.7	6.7
Clinton	368.4	246.0	.6	.0	615.1	5.5
Jefferson	410.2	71.1	3.3	.0	484.6	7.0
Lycoming	601.5	296.4	20.2	.0	918.1	5.4
Venango	368.9	103.9	3.1	.0	476.0	6.9
North-central Unit	2,873.1	1,240.0	90.2	.0	4,203.3	2.4

Table 154.-continued

(In millions of cubic feet)

County and geographic unit	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Dauphin	147.0	35.7	10.6	.0	193.4	12.6
Franklin	205.0	27.1	18.7	.0	250.8	11.2
Fulton	191.9	58.0	5.6	.0	255.6	9.3
Huntingdon	343.5	149.3	13.7	.0	506.5	7.7
Juniata	152.9	48.8	4.3	.0	206.0	10.5
Mifflin	198.6	47.1	4.6	.0	250.3	11.4
Perry	237.7	58.0	2.7	.0	298.3	8.3
Snyder	65.3	53.2	4.4	.0	122.9	14.6
Union	105.5	74.8	.0	.0	180.3	7.2
South-central Unit	1,647.5	551.9	64.6	.0	2,264.1	3.4
Bradford	352.4	259.5	24.4	.0	636.3	6.8
Lackawanna	195.9	76.8	6.8	.0	279.5	10.2
Susquehanna	340.0	136.4	16.7	.0	493.1	7.1
Wayne	382.9	140.7	7.9	.0	531.5	7.0
Wyoming	169.4	101.9	4.3	.0	275.5	14.0
Northeastern Unit	1,440.6	715.3	60.0	.0	2,215.9	3.7
Carbon	41.4	90.1	12.6	.0	144.1	12.5
Columbia	158.9	69.8	1.4	.0	230.0	9.3
Luzerne	262.5	201.7	18.4	.0	482.6	8.4
Monroe	308.1	137.8	12.4	.0	458.3	8.9
Pike	264.2	98.1	11.8	.0	374.1	9.7
Schuylkill	135.6	228.4	8.8	.0	372.7	6.9
Montour/Northumberland	112.4	66.0	17.6	.0	196.0	11.0
Pocono Unit	1,283.0	892.0	82.9	.0	2,257.9	3.6
Adams	125.6	30.0	2.2	.0	157.9	15.4
Berks	213.5	49.6	11.2	.0	274.3	10.8
Cumberland	76.2	64.4	1.2	.0	141.7	11.7
York	212.3	50.7	.4	.0	263.4	9.3
Bucks/Lehigh/Northampton	266.2	73.3	15.9	.0	355.3	9.8
Chester/Delaware/Montgomery	280.5	40.9	2.0	.0	323.4	13.2
Lancaster/Lebanon	241.0	27.9	10.4	.0	279.4	13.5
Southeastern Unit	1,415.2	336.9	43.2	.0	1,795.3	4.6
State total	17,623.0	6,417.4	742.9	1.2	24,784.5	1.1
SE	1.9	3.2	7.1	62.5	1.1	

Table 155.--Net volume of growing-stock and sawtimber trees on timberland by county, geographic unit, and species group, Pennsylvania, 1989

County and geographic unit	Growing stock (In millions of cubic feet)					Sawtimber (In millions of board feet)				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total
Allegheny	.2	.2	100.5	72.8	173.7	.4	.0	264.2	232.0	496.6
Armstrong	5.6	4.1	143.7	143.4	296.8	20.2	15.2	331.7	497.3	864.4
Butler	9.8	2.0	186.6	87.9	286.3	14.9	7.0	479.4	295.6	796.7
Crawford	68.4	42.0	248.2	143.9	502.4	219.2	127.9	596.2	433.0	1,376.3
Erie	.5	31.7	209.6	134.4	376.2	.6	94.1	557.7	415.7	1,068.0
Greene	.5	5.4	154.7	123.7	284.3	1.3	12.4	384.6	348.6	746.9
Indiana	13.1	22.0	197.8	163.4	396.3	13.4	46.0	512.4	515.4	1,087.2
Mercer	1.5	.0	115.2	105.1	221.8	4.5	.0	318.9	365.1	688.5
Washington	16.9	.0	159.8	94.7	271.4	40.3	.0	338.4	259.8	638.5
Westmoreland	9.4	7.6	231.3	222.5	470.8	27.4	31.3	702.2	740.1	1,501.0
Beaver/Lawrence	3.7	.0	147.8	113.3	264.7	6.2	.0	350.2	403.5	759.8
Western Unit	129.4	114.9	1,895.2	1,405.1	3,544.6	348.1	333.9	4,835.8	4,506.2	10,023.9
Bedford	41.5	8.6	108.6	294.6	453.3	115.7	28.1	221.6	676.3	1,041.7
Blair	10.8	1.9	63.4	176.1	252.2	15.9	5.5	133.0	467.1	621.5
Cambria	1.1	40.2	191.8	168.0	401.1	3.0	119.7	479.7	451.2	1,053.6
Fayette	.0	6.7	277.3	178.4	462.4	.0	19.8	789.9	480.3	1,290.0
Somerset	16.2	14.1	258.7	228.3	517.3	75.7	38.6	639.2	598.1	1,351.6
Southwestern Unit	69.6	71.5	899.8	1,045.4	2,086.3	210.3	211.8	2,263.4	2,673.0	5,358.4
Cameron	1.6	5.3	177.0	185.7	369.6	6.6	12.5	461.2	480.3	960.7
Elk	4.4	41.3	574.1	337.0	956.8	18.7	123.9	1,796.5	924.8	2,863.9
Forest	15.1	19.3	333.2	177.2	544.8	63.1	54.9	1,259.0	524.3	1,901.2
McKean	2.1	38.4	649.6	433.8	1,123.9	10.1	122.6	1,944.0	888.2	2,964.9
Potter	1.6	40.1	471.7	696.2	1,209.6	4.3	122.4	1,342.7	1,876.4	3,345.8
Sullivan	5.9	45.7	216.0	170.0	437.6	5.3	117.7	624.9	459.4	1,207.2
Tioga	32.6	59.6	368.6	434.4	895.2	98.7	174.2	862.3	1,109.5	2,244.7
Warren	15.1	84.5	365.6	414.3	879.4	59.7	258.5	1,198.1	1,242.9	2,759.1
Allegheny Unit	78.5	334.2	3,155.9	2,848.5	6,417.1	266.4	986.6	9,488.7	7,505.7	18,247.4
Centre	44.6	35.1	160.1	400.4	640.1	134.0	93.7	285.1	1,057.7	1,570.5
Clarion	15.2	49.3	145.1	123.1	332.7	36.9	144.2	322.3	405.8	909.3
Clearfield	30.9	86.5	329.1	290.1	736.7	113.7	264.9	802.2	758.7	1,939.4
Clinton	72.3	54.0	146.8	341.9	615.1	259.0	169.9	220.2	817.2	1,466.3
Jefferson	35.6	36.5	261.7	150.9	484.6	130.3	127.9	762.3	531.1	1,551.6
Lycoming	63.8	60.0	326.8	467.4	918.1	171.9	158.9	850.2	1,142.8	2,323.8
Venango	14.0	9.5	257.6	194.9	476.0	28.1	19.6	642.4	642.1	1,332.2
North-central Unit	276.4	330.9	1,627.2	1,968.7	4,203.3	873.9	979.1	3,884.7	5,355.4	11,093.1

Table 155.-continued

County and geographic unit	Growing stock (In millions of cubic feet)					Sawtimber (In millions of board feet)				
	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Total
Dauphin	8.5	2.4	51.1	131.4	193.4	24.2	11.0	145.5	356.1	536.8
Franklin	5.2	7.5	65.6	172.5	250.8	11.0	18.9	202.0	522.4	754.3
Fulton	24.6	6.8	67.1	157.1	255.6	78.9	20.7	163.5	502.7	765.7
Huntingdon	41.5	21.4	122.9	320.8	506.5	137.5	80.2	255.6	905.8	1,379.2
Juniata	4.6	6.8	64.0	130.6	206.0	14.4	18.0	177.3	338.3	547.9
Mifflin	15.9	4.9	46.5	183.0	250.3	59.8	17.2	116.2	490.5	683.7
Perry	22.2	13.2	69.4	193.5	298.3	67.7	25.0	150.2	550.7	793.7
Snyder	24.0	3.9	22.6	72.4	122.9	47.3	15.4	35.7	176.4	274.8
Union	16.7	19.9	44.8	98.9	180.3	35.4	56.7	118.9	227.3	438.3
South-central Unit	163.2	86.6	554.0	1,460.2	2,264.1	476.4	263.1	1,364.8	4,070.2	6,174.5
Bradford	34.1	35.2	286.7	280.3	636.3	122.9	111.0	573.3	630.2	1,437.5
Lackawanna	.0	33.7	112.6	133.2	279.5	.0	113.0	241.2	278.8	633.0
Susquehanna	21.4	65.4	228.0	178.3	493.1	65.3	200.6	458.5	392.0	1,116.4
Wayne	18.5	32.3	205.9	274.8	531.5	68.8	104.7	463.0	651.0	1,287.5
Wyoming	6.0	10.7	126.8	132.0	275.5	24.2	30.7	322.9	268.9	646.8
Northeastern Unit	80.0	177.3	960.0	998.6	2,215.9	281.2	560.1	2,058.9	2,221.0	5,121.2
Carbon	13.0	10.6	55.2	65.3	144.1	36.3	37.0	85.2	105.4	263.9
Columbia	14.6	21.2	50.2	144.0	230.0	51.4	78.2	89.8	351.9	571.2
Luzerne	35.7	27.9	152.4	266.6	482.6	146.0	112.8	246.0	662.9	1,167.7
Monroe	17.0	37.4	151.4	252.6	458.3	66.9	129.1	332.5	622.9	1,151.3
Pike	47.1	13.3	103.2	210.4	374.1	195.7	41.8	191.5	456.7	885.7
Schuylkill	21.8	23.4	94.9	232.5	372.7	45.6	74.0	144.7	377.6	641.9
Montour/Northumberland	25.4	7.0	49.5	114.1	196.0	75.5	29.8	100.0	276.5	481.8
Pocono Unit	174.6	140.8	657.0	1,285.5	2,257.9	617.3	502.6	1,189.8	2,853.9	5,163.5
Adams	16.1	1.6	16.0	124.1	157.9	51.4	4.5	39.9	381.9	477.8
Berks	10.4	6.9	112.4	144.6	274.3	41.1	6.2	335.0	396.1	778.4
Cumberland	30.8	.0	16.8	94.1	141.7	98.8	.0	38.2	209.7	346.7
York	6.5	13.4	69.8	173.8	263.4	19.2	18.4	220.4	517.5	775.6
Bucks/Lehigh/Northampton	12.2	3.0	153.8	186.2	355.3	35.2	9.1	395.2	597.6	1,037.1
Chester/Delaware/Montgomery	.0	.0	162.5	160.9	323.4	.0	.0	626.6	572.9	1,199.6
Lancaster/Lebanon	1.0	1.7	127.1	149.6	279.4	2.2	2.7	415.5	500.7	921.2
Southeastern Unit	77.1	26.6	658.4	1,033.2	1,795.3	247.9	41.0	2,070.8	3,176.5	5,536.3
State total	1,049.0	1,282.7	10,407.5	12,045.3	24,784.5	3,321.5	3,878.2	27,157.0	32,361.8	66,718.4

Table 156.--Net volume of sawtimber trees on timberland by county, geographic unit, and forest-type group, Pennsylvania, 1989

(In millions of board feet)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Allegheny	.0	.0	.0	.0	184.6	.0	2.3	309.8	.0	496.6	18.9
Armstrong	.0	.0	.0	15.8	586.4	.0	28.3	234.0	.0	864.4	15.3
Butler	21.9	.0	.0	.0	503.5	.0	61.1	178.6	31.6	796.7	13.6
Crawford	256.9	.0	.0	.0	132.8	.0	62.8	897.3	26.5	1,376.3	11.2
Erie	32.9	.0	.0	.0	117.8	.0	110.0	804.2	3.0	1,068.0	12.3
Greene	.0	21.7	.0	.0	586.8	.0	17.0	121.5	.0	746.9	11.5
Indiana	8.5	.0	.0	.0	613.1	.0	1.5	446.7	17.3	1,087.2	11.3
Mercer	.0	.0	.0	.0	236.8	.0	24.0	411.5	16.3	688.5	16.1
Washington	40.3	.0	.0	.0	341.0	.0	51.8	205.4	.0	638.5	15.4
Westmoreland	26.9	.0	.0	3.5	802.3	.0	26.2	642.2	.0	1,501.0	10.7
Beaver/Lawrence	.0	.0	.0	19.9	367.0	.0	59.7	313.3	.0	759.8	14.2
Western Unit	387.3	21.7	.0	39.1	4,472.0	.0	444.7	4,564.3	94.8	10,023.9	4.0
Bedford	.0	.0	78.7	56.3	572.4	.0	47.8	286.5	.0	1,041.7	8.8
Blair	6.0	.0	.0	18.0	412.0	.0	.0	185.5	.0	621.5	13.0
Cambria	110.7	.0	.0	.0	370.8	.0	9.9	562.2	.0	1,053.6	8.7
Fayette	.0	.0	.0	.0	1,054.2	.0	78.2	157.6	.0	1,290.0	9.8
Somerset	22.0	2.7	.0	131.3	718.7	.0	.0	476.8	.0	1,351.6	11.3
Southwestern Unit	138.8	2.7	78.7	205.7	3,128.1	.0	135.9	1,668.5	.0	5,358.4	4.7
Cameron	.0	.0	.0	.0	573.3	.0	19.0	368.4	.0	960.7	10.5
Elk	59.8	.0	.0	22.4	782.8	.0	99.8	1,893.1	6.0	2,863.9	5.2
Forest	55.1	.0	.0	42.1	415.8	.0	60.7	1,320.1	7.5	1,901.2	9.3
McKean	62.8	5.9	.0	.0	196.4	.0	475.2	2,215.5	9.1	2,964.9	7.8
Potter	9.1	.0	.0	.0	655.5	.0	87.0	2,466.4	127.7	3,345.8	6.1
Sullivan	50.5	.0	.0	6.3	32.9	.0	73.1	1,044.5	.0	1,207.2	9.3
Tioga	143.3	.0	.0	.0	733.8	.0	9.4	1,285.5	72.6	2,244.7	8.3
Warren	202.7	.0	.0	.0	494.4	.0	92.1	1,969.9	.0	2,759.1	6.8
Allegheny Unit	583.3	5.9	.0	70.7	3,884.8	.0	916.3	12,563.5	222.9	18,247.4	2.7
Centre	84.5	.0	21.9	8.7	1,183.1	.0	70.0	202.4	.0	1,570.5	8.0
Clarion	259.7	2.1	.0	.0	483.5	.0	5.3	141.5	17.2	909.3	11.4
Clearfield	305.8	8.5	.0	.0	552.8	.0	60.2	1,005.7	6.4	1,939.4	9.8
Clinton	349.7	.0	55.0	98.8	853.5	.0	7.1	89.2	13.1	1,466.3	8.5
Jefferson	240.5	.0	.0	34.2	484.3	.0	11.6	771.4	9.7	1,551.6	9.4
Lycoming	242.4	2.0	2.0	32.7	654.4	.0	120.5	1,251.2	18.5	2,323.8	7.6
Venango	13.1	.0	.0	.0	858.9	.0	12.6	427.9	19.8	1,332.2	9.2
North-central Unit	1,495.7	12.6	78.9	174.4	5,070.3	.0	287.3	3,889.3	84.7	11,093.1	3.4

Table 156.-continued

(In millions of board feet)

County and geographic unit	Forest-type group									All groups	SE
	White/ red pine	Spruce/ fir	Loblolly/ shortleaf	Oak/ pine	Oak/ hickory	Oak/gum/ cypress	Elm/ash/ red maple	Northern hardwoods	Aspen/ birch		
Dauphin	.0	.0	.0	10.1	481.3	.0	.0	45.4	.0	536.8	18.8
Franklin	.0	.0	.0	.0	657.1	.0	24.8	72.4	.0	754.3	13.1
Fulton	1.4	.0	.0	116.0	591.2	.0	.0	57.1	.0	765.7	12.1
Huntingdon	141.4	.0	3.4	106.7	948.6	.0	.0	179.1	.0	1,379.2	11.7
Juniata	15.1	.0	.0	.0	438.3	.0	3.8	90.7	.0	547.9	15.5
Mifflin	59.5	.0	.0	.0	493.6	.0	.0	130.6	.0	683.7	13.7
Perry	.0	19.4	.0	37.1	606.2	.0	25.5	105.4	.0	793.7	10.0
Snyder	9.7	.0	15.2	49.7	180.6	.0	.0	19.7	.0	274.8	24.8
Union	1.7	.0	.0	36.3	241.9	.0	23.8	134.6	.0	438.3	14.4
South-central Unit	228.8	19.4	18.6	356.0	4,638.8	.0	77.9	835.0	.0	6,174.5	4.7
Bradford	127.9	.0	.0	60.5	341.1	.0	47.8	860.1	.0	1,437.5	8.8
Lackawanna	159.4	.0	.0	.0	137.4	.0	37.8	296.9	1.5	633.0	15.2
Susquehanna	190.4	.0	.0	31.9	68.1	.0	21.0	732.1	72.9	1,116.4	10.0
Wayne	173.0	.0	.0	.0	127.6	.0	21.4	949.0	16.5	1,287.5	8.1
Wyoming	5.4	.0	.0	7.5	188.2	.0	17.2	373.5	54.9	646.8	18.6
Northeastern Unit	656.3	.0	.0	99.9	862.4	.0	145.3	3,211.6	145.7	5,121.2	4.9
Carbon	52.3	.0	15.4	17.0	136.7	.0	13.7	28.7	.0	263.9	19.8
Columbia	23.3	.0	40.7	.0	431.1	.0	.0	76.0	.0	571.2	12.4
Luzerne	171.6	.0	.0	107.2	598.8	.0	21.7	265.4	3.0	1,167.7	12.9
Monroe	88.2	4.2	.0	48.8	511.0	.0	66.3	432.8	.0	1,151.3	13.1
Pike	193.9	.0	.0	49.8	498.1	.0	29.2	114.6	.0	885.7	14.8
Schuylkill	83.1	.0	.0	61.0	426.0	.0	.0	68.2	3.7	641.9	14.5
Montour/Northumberland	42.0	.0	65.0	43.4	308.7	.0	6.7	15.9	.0	481.8	16.5
Pocono Unit	654.5	4.2	121.1	327.3	2,910.3	.0	137.7	1,001.8	6.6	5,163.5	5.7
Adams	.0	.0	.0	17.0	443.0	.0	17.7	.0	.0	477.8	17.4
Berks	.0	.0	.0	32.8	607.6	.0	53.1	85.0	.0	778.4	13.4
Cumberland	30.2	.0	65.9	.0	250.6	.0	.0	.0	.0	346.7	19.5
York	.0	13.0	11.9	.0	712.1	.0	.0	38.6	.0	775.6	14.9
Bucks/Lehigh/Northampton	56.2	.0	.0	.0	783.4	.0	121.7	75.8	.0	1,037.1	12.3
Chester/Delaware/Montgomery	.0	.0	.0	.0	1,156.5	.0	.0	43.0	.0	1,199.6	14.3
Lancaster/Lebanon	.0	.0	.0	2.4	803.1	.0	27.3	88.3	.0	921.2	17.3
Southeastern Unit	86.4	13.0	77.8	52.2	4,756.3	.0	219.8	330.7	.0	5,536.3	5.9
State total	4,231.1	79.6	375.0	1,325.3	29,723.1	.0	2,364.9	28,064.7	554.7	66,718.4	1.5
SE	10.0	42.7	25.0	17.3	2.8	.0	12.4	3.1	24.8	1.5	

Table 157.--Net volume of sawtimber trees on timberland by county, geographic unit, and stand-size class, Pennsylvania, 1989

(In millions of board feet)

County and geographic unit	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Allegheny	451.9	32.6	12.1	.0	496.6	18.9
Armstrong	759.4	61.4	43.6	.0	864.4	15.3
Butler	658.1	122.0	16.6	.0	796.7	13.6
Crawford	1,222.8	144.0	9.5	.0	1,376.3	11.2
Erie	962.6	73.3	32.1	.0	1,068.0	12.3
Greene	596.2	128.6	22.2	.0	746.9	11.5
Indiana	880.8	148.5	57.9	.0	1,087.2	11.3
Mercer	611.6	50.8	26.2	.0	688.5	16.1
Washington	555.8	65.8	16.9	.0	638.5	15.4
Westmoreland	1,314.6	137.7	48.7	.0	1,501.0	10.7
Beaver/Lawrence	580.2	106.5	73.0	.0	759.8	14.2
Western Unit	8,594.1	1,071.2	358.7	.0	10,023.9	4.0
Bedford	748.6	233.7	59.4	.0	1,041.7	8.8
Blair	477.4	91.5	52.6	.0	621.5	13.0
Cambria	922.1	101.1	30.5	.0	1,053.6	8.7
Fayette	1,068.9	199.7	21.4	.0	1,290.0	9.8
Somerset	1,084.0	237.1	30.4	.0	1,351.6	11.3
Southwestern Unit	4,300.9	863.1	194.4	.0	5,358.4	4.7
Cameron	815.2	129.9	15.6	.0	960.7	10.5
Elk	2,621.4	235.3	7.1	.0	2,863.9	5.2
Forest	1,775.3	89.8	36.1	.0	1,901.2	9.3
McKean	2,501.7	400.6	60.7	1.9	2,964.9	7.8
Potter	2,939.7	364.1	42.0	.0	3,345.8	6.1
Sullivan	1,017.4	180.2	9.7	.0	1,207.2	9.3
Tioga	1,644.6	565.4	34.6	.0	2,244.7	8.3
Warren	2,526.9	172.5	59.7	.0	2,759.1	6.8
Allegheny Unit	15,842.2	2,137.7	265.7	1.9	18,247.4	2.7
Centre	1,196.2	328.9	45.5	.0	1,570.5	8.0
Clarion	752.4	114.5	42.3	.0	909.3	11.4
Clearfield	1,611.9	298.4	29.1	.0	1,939.4	9.8
Clinton	1,076.0	390.2	.0	.0	1,466.3	8.5
Jefferson	1,429.9	120.7	1.1	.0	1,551.6	9.4
Lycoming	1,806.1	487.2	30.5	.0	2,323.8	7.6
Venango	1,176.9	155.3	.0	.0	1,332.2	9.2
North-central Unit	9,049.5	1,895.2	148.4	.0	11,093.1	3.4

Table 157.-continued

(In millions of board feet)

County and geographic unit	Stand-size class				All classes	SE
	Saw-timber	Pole-timber	Sapling and seedling	Non-stocked		
Dauphin	472.0	42.7	22.1	.0	536.8	18.8
Franklin	641.0	61.2	52.1	.0	754.3	13.1
Fulton	638.8	107.9	19.0	.0	765.7	12.1
Huntingdon	1,138.3	224.1	16.8	.0	1,379.2	11.7
Juniata	467.3	76.8	3.8	.0	547.9	15.5
Mifflin	589.8	84.0	9.9	.0	683.7	13.7
Perry	691.4	92.5	9.7	.0	793.7	10.0
Snyder	195.4	74.5	4.9	.0	274.8	24.8
Union	323.8	114.5	.0	.0	438.3	14.4
South-central Unit	5,157.6	878.5	138.4	.0	6,174.5	4.7
Bradford	993.0	397.8	46.7	.0	1,437.5	8.8
Lackawanna	529.3	91.1	12.6	.0	633.0	15.2
Susquehanna	912.8	185.3	18.3	.0	1,116.4	10.0
Wayne	1,070.1	210.2	7.2	.0	1,287.5	8.1
Wyoming	513.2	128.5	5.1	.0	646.8	18.6
Northeastern Unit	4,018.4	1,012.9	89.9	.0	5,121.2	4.9
Carbon	128.2	128.1	7.6	.0	263.9	19.8
Columbia	459.0	108.4	3.8	.0	571.2	12.4
Luzerne	834.5	299.2	34.0	.0	1,167.7	12.9
Monroe	904.1	220.3	27.0	.0	1,151.3	13.1
Pike	723.1	147.6	15.0	.0	885.7	14.8
Schuylkill	377.6	260.0	4.3	.0	641.9	14.5
Montour/Northumberland	347.9	96.2	37.6	.0	481.8	16.5
Pocono Unit	3,774.4	1,259.8	129.4	.0	5,163.5	5.7
Adams	409.9	62.3	5.6	.0	477.8	17.4
Berks	691.1	73.7	13.7	.0	778.4	13.4
Cumberland	242.1	104.6	.0	.0	346.7	19.5
York	700.0	75.6	.0	.0	775.6	14.9
Bucks/Lehigh/Northampton	906.4	109.8	21.0	.0	1,037.1	12.3
Chester/Delaware/Montgomery	1,128.8	69.6	1.2	.0	1,199.6	14.3
Lancaster/Lebanon	843.3	45.5	32.4	.0	921.2	17.3
Southeastern Unit	4,921.6	540.9	73.8	.0	5,536.3	5.9
State total	55,658.7	9,659.2	1,398.6	1.9	66,718.4	1.5
SE	2.0	3.6	9.5	100.0	1.5	

List of Available Tables

Area tables--available at State, Unit and County levels

0001. Land area by land class (expanded)
0002. Land area by land class
0020. Area of timberland by forest type, forest-type group, and stand-size class
0021. Area of timberland by forest-type group and stand-size class
0022. Area of timberland by timber management class and forest-type group
0024. Area of timberland by forest type and age class
0025. Area of timberland by forest-type group and cubic-foot stand-volume class
0026. Area of timberland by forest-type group and board-foot stand-volume class
0027. Area of timberland by forest-type group and dry ton stand-volume class
0028. Area of timberland by forest-type group and stocking class of all live trees
0029. Area of timberland by forest-type group and stocking class of growing-stock trees
0030. Area of timberland by forest-type group and basal-area class (all live trees)
0130. Area of timberland by stand-size class, forest-type group, and basal-area class (all live trees)
0031. Area of timberland by forest type and physiographic class
0032. Area of timberland by forest type and elevation class
0050. Area of timberland by ownership class and stand-size class
0150. Area of timberland by stand-size class and ownership class
0051. Area of timberland by board-foot stand-volume class and ownership class
0052. Area of timberland by site productivity class and ownership class
0053. Area of timberland by forest-type group and ownership class
0054. Area of timberland by ownership class and stocking class of growing-stock trees
0154. Area of timberland by stocking class of growing-stock trees and ownership class
0134. Area of timberland by timber management class and stand-size class

Number of trees tables--available at State, Unit and County levels

1010. Number of all live trees on timberland by species and diameter class
1011. Number of live trees (5.0+ inches d.b.h.) on timberland by species and diameter group
1012. Number of all live trees on timberland by expanded species and tree-size class
1013. Number of all growing-stock trees on timberland by species and diameter class
1014. Number of cull trees (5.0+ inches d.b.h.) on timberland by species and diameter class
1015. Number of cull trees (5.0+ inches d.b.h.) on timberland by species, cull category and tree size
1016. Number of cull trees (5.0+ inches d.b.h.) on timberland by species and diameter group
1017. Number of all live trees on timberland by diameter class, tree class, and species group
1018. Number of trees (5.0+ inches d.b.h.) on timberland by species and tree class
1021. Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by forest type and species
1040. Number of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and general damage
1041. Number of all live trees on timberland by species and browse-utilization class
1043. Number of cull trees (5.0+ inches d.b.h.) on timberland by species and general damage
1044. Number of live trees (1.0+ inches d.b.h.) on timberland by species and diameter class
1045. Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class

List of Available Tables (continued)

Cubic-foot volume tables--available at State, Unit and County levels

2011. Gross volume of all live trees on timberland by species and diameter class
2012. Net volume of growing-stock trees on timberland by expanded species and tree-size class
2013. Net volume of growing-stock trees on timberland by species and diameter class
2014. Net volume of growing-stock trees on timberland by expanded species and diameter class
2018. Gross volume of all trees on timberland by species and tree class
2019. Sound volume of all trees on timberland by species and tree class
2020. Net volume of all trees on timberland by species and tree class
2021. Net volume of growing-stock trees on timberland by forest type and species
2025. Net volume of all live trees on timberland by class of timber and species group
2026. Net volume of growing-stock trees on timberland by forest type and stand-size class
2027. Net volume of growing-stock trees on timberland by forest-type group and ownership class
2028. Net volume of growing-stock trees on timberland by forest-type group and basal-area class (all live trees)
2228. Net volume of growing-stock trees on timberland by stand-size class, forest-type group, and basal-area class (all live trees)
2030. Net volume of growing-stock trees on timberland by species and stand-size class
2031. Net volume of growing-stock trees on timberland by species and cubic-foot stand-volume class
2032. Net volume of growing-stock trees on timberland by sawtimber/poletimber and species group
2033. Net volume of growing-stock trees on timberland by forest type and physiographic class
2034. Volume suitable for pulpwood on timberland by species, tree type and size
2035. Net volume of growing-stock trees on timberland by forest type and elevation class
2121. Net volume of growing-stock trees on timberland by species and forest-type group
2126. Net volume of growing-stock trees on timberland by forest-type group and stand-size class
2127. Net volume of all trees on timberland by class of timber and species group
2128. Net volume of all live, growing-stock, and sawtimber trees on timberland by species group and ownership class
2129. Net volume of growing stock in the sawlog portion of sawtimber trees on timberland by species and diameter class

Board-foot volume tables--available at State, Unit and County levels

3013. Net volume of sawtimber trees on timberland by species and diameter class
3014. Net volume of sawtimber trees on timberland by expanded species and diameter class
3026. Net volume of sawtimber trees on timberland by forest type and stand-size class
3027. Net volume of sawtimber trees on timberland by forest-type group and ownership class
3040. Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade (<15", >15", Total grade 1, etc.)
3041. Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade (<15" LG1, <15" LG2,...>15" LG4, Tot)
3042. Net volume of sawtimber trees on timberland by species, size class, and standard-lumber log grade (>15" LG1, >15" LG2,...All sizes LG4)
3045. Net volume of sawtimber trees on timberland by species, size class, and tree grade

List of Available Tables (continued)

Biomass tables (dry weight)--available at State, Unit and County levels

4000. Net dry weight of all live softwood trees on timberland by diameter class and stand-size class
4001. Net dry weight of all live hardwood trees on timberland by diameter class and stand-size class
4010. Net dry weight of all trees on timberland by class of material and species group
4012. Net dry weight of all live trees on timberland by species and diameter class
4013. Net dry weight of the merchantable stem of growing-stock trees on timberland by species and diameter class
4014. Net dry weight of growing-stock trees (5.0+ inches d.b.h.) on timberland by species and diameter class
4015. Net dry weight of all live trees (5.0+ inches d.b.h.) on timberland by species and diameter group
4016. Net dry weight of all live trees on timberland by type of tree and component, and age class
4020. Net dry weight of all live trees on timberland by forest type and stand-size class
4021. Net dry weight of all live trees on timberland by forest-type group and stand-size class
4022. Net dry weight of all live trees on timberland by treatment-opportunity class and forest-type group
4030. Net dry weight of cull trees (5.0+ inches d.b.h.) on timberland by forest-type group and stand-size class
4031. Net dry weight of cull trees (5.0+ inches d.b.h.) on timberland by species and diameter group
4032. Net dry weight of cull trees (5.0+ inches d.b.h) on timberland by type of tree and component, and species group

Wildlife tables--available at State, Unit and County levels

5001. Number of all live nut- and fruit-producing trees on timberland by species and diameter class
5002. Number of shrubs and saplings on timberland by stand-size class, type of stem, and mast type
5003. Number of standing dead trees (5.0+ inches d.b.h.) on timberland by species, condition class, and diameter class
5004. Number of standing trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and condition class
5005. Number of seedlings, saplings, and shrubs on timberland by species and stand-size class
5006. Number of seedlings, saplings, and shrubs on timberland by species and forest-type group
5007. Number of seedlings, saplings, and shrubs on timberland by species and browse-utilization class
5008. Number of standing trees (5.0+ inches d.b.h.) with observed cavities on timberland by species and presence of cavities
5009. Number of snags (5.0+ inches d.b.h.) on timberland by expanded species and diameter class
5010. Number of standing trees (5.0+ inches d.b.h.) with observed cavities on timberland by expanded species and diameter class

List of Available Tables (continued)

Growth tables--available at State and Unit levels

8120. Average annual net growth, average annual removals, and average annual mortality of growing-stock and sawtimber volume on timberland by species
9201. Average annual net growth of growing-stock volume on timberland by species and component of growth
9202. Average annual net change of growing-stock volume on timberland by species and component of change
9203. Total net growth of growing-stock volume on timberland by species and component of growth
9204. Total net change of growing-stock volume on timberland by species and component of change
9213. Current (1988) net volume of growing-stock trees on timberland by species and diameter class
9214. Previous (1977) net volume of growing-stock trees on timberland by species and diameter class
9301. Average annual net growth of sawtimber volume on timberland by species and component of growth
9302. Average annual net change of sawtimber volume on timberland by species and component of change
9303. Total net growth of sawtimber volume on timberland by species and component of growth
9304. Total net change of sawtimber volume on timberland by species and component of change

Core tables--available at State and Unit levels

C001. Land area by county and land class
C002. Area of timberland by county and ownership class
C003. Area of timberland by county and forest-type group
C004. Area of timberland by county and stand-size class
C005. Area of timberland by county and site productivity class
C006. Area of timberland by county and stocking class of growing-stock trees
C007. Area of timberland by forest-type group and ownership class
C008. Area of timberland by ownership class and stocking class of growing-stock trees
C009. Area of timberland by forest-type group and stand-size class
C010. Number of live trees (1.0+ inches d.b.h.) on timberland by species and diameter class
C011. Number of growing-stock trees (1.0+ inches d.b.h.) on timberland by species and diameter class
C012. Net volume of growing-stock trees on timberland by species and diameter class
C013. Net volume of growing stock in the sawlog portion of sawtimber trees on timberland by species and diameter class
C014. Net volume of sawtimber trees on timberland by species and diameter class
C015. Net volume of growing-stock and sawtimber trees on timberland by county and species group
C016. Net volume of all trees on timberland by class of timber and species group
C017. Net volume of live and growing-stock trees on timberland by ownership class and species group
C018. Average annual net growth of growing-stock and sawtimber volume on timberland by county and species group

List of Available Tables (continued)

C019. Average annual removals of growing-stock and sawtimber volume on timberland by county and species group
C020. Average annual net growth and average annual removals of growing-stock volume on timberland by species
C021. Average annual net growth and average annual removals of sawtimber volume on timberland by species
C022. Average annual mortality of growing-stock and sawtimber volume on timberland by species
C023. Average annual net growth and average annual removals of growing-stock volume on timberland by ownership class and species group
C024. Average annual net growth and average annual removals of sawtimber volume on timberland by ownership class and species group
C025. Net volume of sawtimber trees on timberland by species, size class, and tree grade

County tables--available at State level

8001. Net land area by county, geographic unit, and land class (excludes productive and unproductive reserved land)
8002. Area of timberland by county, geographic unit, and ownership class
8020. Area of timberland by county, geographic unit, and stand-size class
8021. Area of timberland by county, geographic unit, and forest-type group
8025. Area of timberland by county, geographic unit, and cubic-foot stand-volume class
8027. Area of timberland by county, geographic unit, and dry ton stand-volume class
8029. Area of timberland by county, geographic unit, and stocking class of growing-stock trees
8050. Area of timberland by county, geographic unit, and expanded ownership class
8051. Area of timberland by county, geographic unit, and ownership class
8052. Area of timberland by county, geographic unit, and site productivity class
8213. Net volume of growing-stock trees on timberland by county, geographic unit, and species
8220. Net volume of all live trees on timberland by county, geographic unit, and species
8227. Net volume of growing-stock trees on timberland by county, geographic unit, and forest-type group
8230. Net volume of growing-stock trees on timberland by county, geographic unit, and stand-size class
8232. Net volume of growing-stock and sawtimber trees on timberland by county, geographic unit, and species group
8313. Net volume of sawtimber trees on timberland by county, geographic unit, and species
8326. Net volume of sawtimber trees on timberland by county, geographic unit, and stand-size class
8327. Net volume of sawtimber trees on timberland by county, geographic unit, and forest-type group

Alerich, Carol L. 1993. **Forest Statistics for Pennsylvania--1978 and 1989**. Resour. Bull. NE-126. Radnor, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station. 244 p.

A statistical report on the fourth forest survey of Pennsylvania (1988-90). Findings are displayed in 157 tables containing estimates of forest area, numbers of trees, wildlife habitat, tree biomass, timber volume, timber products output, growth, and change. Data are presented at three levels: state, geographic unit, and county.

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Keywords: Forest survey, inventory, area, volume, biomass

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